



December 2, 2019

### **Protest, San Juan Islands National Monument Management Plan**

Kwiaht submitted extensive footnoted and referenced scientific comments on the draft RMP on December 1, 2018. Our comments focused on three concerns: (1) the draft emphasized increased public access and recreational use of the Monument; (2) the draft lacked specifics with regard the protection of locally rare or threatened species; and (3) the draft embraced the use of prescribed burning as a tool of habitat “restoration” despite scientific evidence that this approach had degraded other federal lands in the San Juan Islands, *viz.* promoting Eurasian grasses at the expense of native herbaceous plant species. We also objected to the proposed use of herbicides.

Kwiaht is a 501C3 nonprofit scientific and educational organization, and since 2006 it has been the principal local institution studying the terrestrial biodiversity and biogeography of the San Juan Islands, in cooperation with public land managers as well as farmers and homeowners. Kwiaht inventories and monitors animal and plant species, investigates and models food webs, and studies the impacts of human disturbance and climate change at a number of long term study sites staffed by scores of “citizen scientists”. Kwiaht is a regional pioneer in acoustic techniques of monitoring wildlife behavior and abundance (“soundscapes”). Research projects are overseen by islanders that are experienced botanists, wildlife biologists, and microbiologists, supported by private foundations as well as state and federal grants and contracts.

Kwiaht participated in the community discussions in 2010-2013 that led to establishment of San Juan Islands National Monument, and supplied much of the ecosystem data and current-conditions maps that were provided to the state’s Congressional delegation and the White House in support of monument designation—chiefly on the basis of original research on more than sixty small islands and shoreline parcels in San Juan, Skagit and Whatcom counties.

Unlike most National Monuments established in recent decades, SJINM was a grassroots initiative that included neighboring homeowners and private landowners as well as scientists and conservationists. The 2013 proclamation recognized this by mandating the creation of a broadly representative Management Advisory Committee to ensure an effective community voice in the administration of these lands.

At community meetings leading up to, and following the establishment of this National Monument, which we attended, islanders were nearly unanimous that:

1. The primary focus of re-designating these BLM lands should be conservation of fragile habitats and locally scarce species, through “permanent protection,” scientific studies and educational activities, and in particular, that the restrictions already applicable to the Iceberg Point-Colville ACECs since 1990 be maintained or strengthened.

2. Existing community uses of BLM lands in the islands, such as on-trail hiking and casual foraging for personal consumption, should nonetheless be allowed to continue except where they pose a demonstrable threat to the conservation of protected habitats or species, especially on Lopez Island where BLM lands comprise a large share of total public land area available to the community.
3. Public recreational use of these lands generally has already increased to the point of threatening fragile coastal habitats including wildflower meadows and rocky, lichen-covered bluffs; therefore, additional use should not be encouraged or facilitated, for example through new trails, expanded parking, or tourism promotion activities.

The Proposed Plan violates each of these community expectations in ways that lack sound scientific support consistent with the objects and values set forth in the 2013 proclamation; and fail to respond adequately to the scientific literature and field data that Kwiaht submitted in our December 2018 comment on the draft RMP. We are especially concerned that the Proposed RMP adopts the following strategies and actions:

- Constructing additional trails
- Permitting dispersed camping
- Restricting local food foraging
- Taking no specific actions to protect species that are locally rare
- Conducting extensive prescribed burning as a habitat management tool
- Applying herbicides to large areas of protected landscapes
- Planting species not previously found in the Monument

### **Procedural defects**

As a threshold issue, we protest the failure of the BLM to provide islanders with the full measure of input and influence to the planning process that Proclamation 8497 contemplated. A significant element of this failure has been suspension of meetings of the Management Advisory Committee during the plan review period (2018-2019). The suspension is a *per se* violation of the decision-making process established by law for this Monument. It deprived islanders of a direct, on-the-record voice in vetting the Draft RMP in 2018, and addressing unresolved concerns with the Proposed Plan as we approach the end of 2019.

In our review of the Proposed Plan, we discovered a significant number of citations in the text to documents that are not described in Appendix S (References), or which appear to be gray literature, such as unpublished technical reports submitted by contractors, copies of which have not been included in the Appendices and therefore must be individually sought as hard copy from BLM offices. Most of these citations appear to have been added in response to comments on the Draft RMP; but they are meaningless if the source documents are unidentified or unavailable. It is improper, if not unlawful for BLM to rely on purported scientific data and expert opinions that are withheld—whether or not deliberately—from the public.

The Proposed Plan also introduces a number of new elements (actions and restrictions) that were not part of *any* of the Alternatives set out in the Draft RMP. Of particular concern, for Kwiaht, is the addition at this late stage of details such as the locations to be “restored,” and the frequency and extent of “restoration” actions such as burning and herbicide application. These kinds of operational details should have been included in the Draft RMP so that they could be evaluated independently as a part of the public comment process. Adding them now defeats the purpose of soliciting comments from the public (FLPMA, sec. 202(f)). Transparency and the opportunity to comment are especially important when dealing with decisions about lighting fires and spraying herbicides very close to peoples’ homes and farms—and close to where they forage, fish, or dig shellfish.

Kwiaht emphatically protests the introduction, at this stage of the process, of Appendix J, which contains a purported “hierarchical” master plan for maintaining or restoring Monument landscapes to their condition just prior to Proclamation 8497. This material was not part of the Draft RMP that was published in November 2018. It references the opinions of a few researchers on cause-and-effect issues that have been widely studied, disputed, and are by no means settled scientifically. No other perspectives or sources of evidence are acknowledged. Cherry-picking one published viewpoint does not satisfy the requirement that BLM land use plans “use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences” (FLPMA, sec. 201(C)(2)). Adding this material to the draft after the comment period deprives the public and scientific community of an opportunity to submit publications and data that are critical of the assertions made in Appendix J. Although Appendix J sets out actions to be taken on Monument lands, it does not include, or represent, a NEPA review of the probable consequences of those actions for the species and habitats this Monument was meant to protect.

### **References and sources**

We provided BLM with copies of our unpublished reports and data in support of our public comment on the Draft RMP, at the agency’s request. Very little of this material is referenced by the Proposed Plan, although it includes the original field surveys that informed the Proclamation. Instead, the Proposed Plan is replete with erroneous assertions that are either unreferenced, or misstate the data in sources that are referenced. An example: our comment expressed concern about the proximity of trails to a Black Oystercatcher nest on Indian Island that Kwiaht staff and volunteers have monitored for 11 years. BLM responded that the Oystercatchers would move their nest (Appendix T, p. 837). This reply is shockingly ignorant of avian biology as well as Indian Island topography. These threatened-status birds form permanent pairs that return to the same nest site, as the Indian Island pair has done. They choose bare rocky overlooks, and there is only one such site at Indian Island, a few square yards in extent. Scores of island bird-watchers could have given BLM the same information. This may seem minor, but illustrates a persistent problem with basic biological facts that undermines the credibility of the Proposed Plan as a whole.<sup>1</sup>

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<sup>1</sup> Another clear example of error is the assertion that no native salmonids spawn in San Juan County (p. 254). But see J Glasgow, J. de Groot, and M Small, “Genetic composition and conservation status of coastal cutthroat trout

Many significant policy choices in the Proposed Plan rest upon questionable assertions of fact. For instance, the plan's habitat-restoration goals and strategy rest upon the assertion that "grasslands" and Douglas Fir-Garry oak woodlands dominated the San Juan Islands' 19<sup>th</sup>-century landscapes, citing several articles that do not, in fact, make this claim (p. 239), and disregarding recent research suggesting that the landscape described was an artifact of European settlement and logging after 1850.<sup>2</sup> Elsewhere, the Proposed Plan bootstraps from a single unpublished and unavailable internal BLM field report from Patos Island to all Monument lands, asserting that "several shade tolerant species may not have been present historically, making their expansion an increasing departure from historical conditions" (p. 73). The Proposed Plan does not identify which plant species "may" be involved, but uses this purported ecological fact to justify extensive modifications of treed landscapes throughout the Monument.

Other examples of misstating and bootstrapping science are highlighted in the review of BLM's proposed actions that follows.

### **Expanded recreational use**

Kwiaht specifically recommended the closure of many existing foot trails in fragile areas, and explicit signage along the remaining trails to discourage off-trail activities. We appreciate the extent to which the Proposed Plan reflects this suggestion.<sup>3</sup> We also appreciate that the proposed new trails, for example on south Lopez Island, do not transit particularly fragile habitats; although we still object to building new trails except where they *replace* existing trails that must be closed to protect fragile habitats. Expanding the trail network is likely to attract more visitors, and they will add to the pressure on existing access points and facilities. While BLM may believe that new trails will take pressure off the existing ones, rather than simply attracting more visitors, no data or literature has been cited to support such an optimistic forecast.

More significantly, Kwiaht's comment on the draft RMP emphasized the need for explicit signage at trail heads and along trail-sides prohibiting off-trail activities. This is especially urgent where visitor numbers are high and (at present) informal social trails and off-trail activity areas are numerous, for example around Iceberg Point. It is also urgent where designated trails dead-end in the middle of small fragile meadows; for example, at Indian Island and Read's Bay Island. A dead-end without a barrier or sign is an invitation for visitors to continue walking, and will lead

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(*Oncorhynchus clarki clarki*) in the San Juan Islands, Washington," *Conservation Genetics* (2019), published online at <https://doi.org/10.1007/s10592-019-01238-5>, and widely circulated prior to publication. The Proposed Plan cites an earlier state government document that refers to a lack of relevant data, rather than absence of spawning fish.

<sup>2</sup> MG Pellatt, and ZE Gedalof, "Environmental change in Garry oak (*Quercus garryana*) ecosystems: the evolution of an eco-cultural landscape. *Biodiversity and conservation*, 23 (8): 2053-2067 (2014). In typical contradictory fashion, the Proposed Plan elsewhere concedes that logging had a significant effect on landscape structure (p. 78).

<sup>3</sup> We are surprised and disappointed that many small islands where we have documented seabird nesting and seal pupping, such as Chuckanut Island, Kanaka Bay and King Islands would be open for recreation under the Proposed Plan. Broadly speaking our field notes, which we shared with BLM, suggest that more small islands should be closed; and we note references in the Proposed Plan to Tribes also seeking a more restrictive approach to small islands.

to the establishment of “social trails”. While we share BLM’s preference for keeping signage to a minimum, signs that state clearly “this is a trail” and “this is not a trail”, or “the area beyond this point is closed for the protection of a fragile habitat”, are a basic necessity for protecting sensitive habitats in the absence of direct human supervision of visitors in the form of rangers, guides, or docents. The Proposed Plan authorizes interpretive signs on just 7 Monument units (p. 4).<sup>4</sup> We are concerned that this omits other islands and coasts where the presence of fragile vegetation, cultural material or nesting birds justifies signs that inform visitors why extra caution and respect for the landscape is warranted. Islands that are closed to the public should also be signed in the manner of islands of the San Juan Islands National Wildlife Refuge.<sup>5</sup>

Kwiaht expressly recommended restricting camping to existing developed campsites on Posey, Blind, and Patos islands in order to prevent further disturbance of fragile habitats as well as cultural resources such as shell middens and ancient gardens. We emphasized the association of camping with wildfire risk, a growing concern of islanders (including emergency management and fire/rescue officials), and this risk is greatest outside of designated camping areas that have fire rings or other fire-containment devices. We can find no justification in the Proposed Plan for risking dispersed camping in one of the driest parts of western Washington that is experiencing increasingly droughty summers; and we note that dispersed camping is inconsistent with existing San Juan County ordinances.

There is also a basic inconsistency between restricting off-trail use and permitting off-trail camping in the same landscapes *e.g.* Indian Island, where the designation of a trail is appropriate for guiding visitors away from fragile, slowly recovering wildflower meadows and ground-nesting birds. If dispersed camping is also permitted on this one-acre island, the trail becomes an access point rather than a restriction of movement, and there will be no visual barrier (such as signage, or a trail edge or fence) separating potential campsites from known nesting areas or occurrences of relatively rare plant species. This island hosts two rare Camas flower morphotypes, and a Black Oystercatcher nesting site, on level ground within sight of the trail: exactly where campers would pitch their tents. We further note that camping necessarily involves not only trampling and soil compaction from tents, but human waste-disposal. Whatever rules BLM prints on a permit, it is highly likely that campers will leave cat-hole latrines, even if they pack out food waste.

Similarly, a number of parcels designated for dispersed camping under the Proposed RMP are physically inhospitable or unfeasible such as small, wave-swept rocks. It is tempting to dismiss the designation of such sites as camping permit locations as irrelevant, since they are so unlikely to be utilized for this purpose. However, our exploratory surveys in 2012-2013 identified sea- or shorebird nesting on many of these small islets and rocks. From a conservation viewpoint, sea- and shorebird nesting should not be publicly identified as potential campsites, even if realistically they are unlikely to be camped upon. The designation implies that disturbance is not a concern

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<sup>4</sup> Blind Island, Posey Island, Chadwick Hill, Iceberg Point, Patos Island, Turn Point, and Watmough Bay.

<sup>5</sup> BLM’s analysis admits that opening any small Monument islands to recreational visitors will increase the likelihood that visitors will also land on restricted islands of the NWR (p. 186) and presumably the Monument as well.

for these sites, when in fact any approach or landing during spring or early summer is a threat to nesting birds, even if no overnight stay is involved.

We also protest the Proposed Plan's authorization of outdoor lighting on some units of the Monument, including many small islands (p. 19). VRM-1 units are exempt, but there are no clear or consistent criteria in the plan for classifying parcels with respect to "visual resources". There is a discussion of Dark Skies and bat-friendly lighting options, but no explanation of why lighting is needed at any of the sites where the plan makes lighting acceptable. Lighting seems incompatible with other overlapping objectives and restrictions; *e.g.*, restrictions to day-use and on-trail hiking. We suspect that campers seeking "solitude" (the wording of the plan) would not favor lighting.

The Proposed Plan as a whole is legally inconsistent with Proclamation 8497, insofar as it privileges recreation over the protection of known biological and cultural resources, in particular on small islands. Kwiaht concurs with Tribal comments that most if not all of these units should be closed to recreational uses. BLM wins no logic contest by arguing that the word "education," where it appears in the 2013 proclamation, should be read as "recreation". Not all recreation is educational nor is all education recreational. The omission of "recreation" from the proclamation was intentional, and it was meant to reduce the impact of human activity on sensitive biological and cultural resources. "Education" implies an organized process led by knowledgeable teachers and directed at specific learning objectives. Equating this with a group of visitors searching for a scenic viewpoint where they can take selfies, is specious.<sup>6</sup>

Kwiaht maintains that the 1990 ACEC plan for the Iceberg-Colville units struck the correct balance: protection takes priority over recreation. By this standard, new trails and camping must be excluded from native wildflower meadows and moss-lichen communities. It is no justification to suggest that visitors, after trampling or pitching tents on century-old reindeer moss, will have learned something from the experience. Surely they learn some other, non-destructive way.

It merits noting here that islanders have repeatedly told BLM that they fear visitors "loving to death" the fragile islets, bluffs and meadows comprising this Monument. While islanders have been anxious to maintain present uses such as day-hiking and foraging, they have opposed new trails (except as a means of replacing existing trails) and any additional camping opportunities. It is unclear why BLM felt obliged to overrule the community's desire to avoid overtourism, while simultaneously overruling the community's interests in food foraging (see below). Apparently, a campsite in the midst of a fragile moss meadow is deemed to have less of an impact—and foster a more educational experience—than some islanders picking berries or mushrooms along trails.

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<sup>6</sup> Paradoxically, the Proposed Plan at p. 17 states that education is not recreational. Having interpreted the reference to "education" in the Proclamation 8497 to bootstrap recreation into a priority, BLM deprives actual educational activities from the privileged role accorded to recreation by the plan.

## Species conservation measures

Kwiaht supports the Proposed Plan's strategy of closing sensitive islands to recreational activities. We are unable to discern any consistent basis upon which BLM chose which islands to close, however. Our surveys documented fragile plant communities and/or cultural materials on Broken Point ("Toad") Island, Little Patos, Lummi Rocks, Oak Island, Twin Rocks, and Richardson Rock (aka Rabbit Island), and we are aware of similar concerns for Mud Island; but we had found no sensitivities on Fautleroy Rock, McConnell Rocks ("Little Mac") or Parks Bay Island that would require closing. On the other hand, we reported exceptionally sensitive plants and/or cultural remains on Reads Bay Island, Blind Island (East Sound), Indian Island, and Skull Island, which the Proposed Plan would leave unrestricted. We can find no consistent criteria for the classification of these islands with respect to sensitive resources.

We are also puzzled by proposed restrictions on foraging for wild plants and fungi, which the local community has practiced on these lands for generations. As a matter of biology, "fruits" (including seeds, cones, mushrooms) are adapted to being harvested by animals as the means by which plants and fungi disperse their propagules. Removing fruits for consumption elsewhere—as opposed to digging up root crowns or fungal mycelia—should have no impacts on harvested species' abundance or distribution. Intensive or large-scale harvesting of fruits might conceivably affect other species that target the same plants or fungi, such as Cedar Waxwings in the case of small native fruits. But BLM has not offered any evidence that human foragers are destructively competing with local wildlife for berries or mushrooms. Nor is there any evidence of harvesting by visitors from the mainland. Restrictions on harvesting wild fruits and mushrooms from public lands will almost entirely affect Lopez Island residents—the community that initiated the process leading to Proclamation 8497. Statements in the Proposed Plan that local foraging is nonexistent or unimportant to islanders are simply erroneous.

Restricting noncommercial foraging affects local food security without any corresponding benefits for plant communities or wildlife. Proposed restrictions on foraging could also become a political problem. BLM does not have the authority to prevent harvesting by members of Treaty Tribes, therefore the proposed restrictions would have to be enforced solely against non-Treaty islanders, resulting in the appearance of unjustifiable discrimination. It might be a different story if there were more limited supplies of wild foods, and such great demand that Treaty harvesters found it difficult to satisfy their needs. Kwiaht is aware of some culturally important Tribal plant harvesting in the San Juan Islands, and provides scientific support for public management of one of the sites; but we are unaware of any competition between Tribal harvesters and local foragers.

With regard to hunting, we reiterate the observation in our public comment on the Draft RMP that browsing by Columbian Black-tailed deer has been a significant factor in reducing native wildflower populations in the Monument; and that nesting populations of non-migratory Canada Geese are trampling native wildflowers, turning up thin friable soils, and spreading Eurasian grasses on small Monument islands. During a 2019 visit to Broken Point Island (aka "Toad Island") we found more than 10 square meters of thin, mossy soil turned up by nesting geese, exposing

hundreds of native wildflower bulbs. This kind of disturbance is not “natural” and requires active control measures. One option is greater hunting pressure on deer and resident geese. Other options include fencing, and egg addling. A reduction in hunting opportunities will result in more damage to native vegetation, however. We recommend that BLM work with the state to increase rather than decrease hunting opportunities in the Monument, including additional deer tags. There should be no restrictions on seasons or hunting methods other than rules applicable to San Juan County as a whole. Prohibiting discharge of firearms in the Monument for reasons other than lawful hunting do not raise these concerns.

The Proposed Plan contends that species expressly identified in Proclamation 8497 do not require special protections or attention because they were not previously identified by BLM as species of concern. It is the executive order establishing the Monument, rather than any general internal BLM administrative assessment of species’ national status, that determines the “objects and values” that must be addressed by the plan, however. We are not dealing here with federal lands that have never been “designated” for particular uses. Rather, SJINM combines unclassified federal lands with pre-existing ACECs and “designates” their use for science and education. The terms of the 1990 ACEC plan and the 2013 proclamation are controlling insofar as they identify the species and habitats that must be protected. The Proposed Plan simply ignores these legally binding directives, and as such, it is inconsistent with applicable federal law.

Maritime heritage sites within the Monument are exempted from species conservation, moreover (p. 9, n. 7). This is facially reasonable: historical buildings are presumed to be located in highly disturbed environments. In actuality, however, at least two of the lighthouses concerned are surrounded by important occurrences of native plants. Cattle Point lighthouse is surrounded by sand dunes and a native lupine community found nowhere else in the San Juan Islands. Work stabilizing and perhaps rebuilding the lighthouse should protect this dune vegetation, which can be extremely difficult to recreate. Similarly, Patos Lighthouse stands in the middle of the largest native wildflower meadow on that island, dense with Camas and Chocolate Lilies, native orchids and Brodiaeas, a type of herbaceous community that is distinctive of dry coastal meadows of the San Juan Islands and is disappearing due to human disturbance and invasive grasses. We see no reason why lighthouses cannot be restored and enjoyed without further damaging the dune and meadow habitats in which they were built.

### **Restoration: fire and herbicides**

The Proposed RMP acknowledges the evidence Kwiaht submitted that prescribed burns, in the ecological conditions that prevail in the San Juan Islands, do *not* increase the native plant component but rather tend to promote non-native grasses and weeds. However, the Proposed RMP goes on to embrace the (equally discredited) notion that native landscapes can be recreated by burning *and then applying herbicides* to suppress the weeds. This argument fails logically and scientifically. If herbicides are necessary to mitigate the unintended consequences of burning on plant-community composition, then why is it useful to burn at all?



The Draft RMP gave no indication of the scale (area, frequency, fuel loading) of prescribed fires contemplated for the Monument. Our public comment on the draft noted that quantifying scale is indispensable for evaluating the potential impacts of fires. Over the past 25 years, there have been (for example) several prescribed burns on a scale of a few acres on Yellow Island under the auspices of The Nature Conservancy,<sup>7</sup> and several rounds of prescribed burns up to about 10 acres in San Juan Island National Historical Park that, unlike the burns at Yellow, were evaluated independently as we cited in our comment on the Draft RMP. The experiment at Yellow required frequent re-planting of native wildflowers. The National Park experimented with herbicides and re-planting after burning its American Camp unit but eventually exhausted the funds required to continue, and the result, which can be seen today, is a dense turf of Eurasian grasses and weeds. The only part of the American Camp landscape with native mosses, lichens, and wildflowers was never burnt. At the National Park's Mount Young unit, an open canopy mixed forest more alike to the coastal bluffs and small islands of SJINM, no herbicides or transplanting were used but the fires were set repeatedly, every few years. The 2018 evaluation report, cited in our comment, is explicit that the result has been more Eurasian grasses and fewer native wildflowers.

On the basis of that recent history here in the islands, a prudent scientist-conservationist would be leery of burning for ecological as well as economic reasons. Yet the Proposed Plan calls for burning more than three hundred acres, or approximately one-third of the total Monument, every few years for 20 years—a total of thousands of acres, including many of the small islands. Instead of exercising caution based on the experience of TNC and the National Park, the Proposed Plan authorizes burning on a scale that is *an order of magnitude greater*—and with no meaningful framework for monitoring and changing direction. This is not scientific. It is reckless. It will also, if implemented, cost millions of dollars over the next 20 years that BLM does not have, and that we believe would be far better spent on three things the National Monument has so far lacked, for want of funding: (1) a full time biologist, (2) at least one or two more professional field people to spend time on the land interacting with visitors, and if necessary intervening to protect cultural and biological resources; and (3) adequate signage.

We also protest the lack of scientifically sound criteria and consistency in the Proposed Plan's selection of Monument parcels that will be burnt or not burnt. This important information is misleadingly closeted within the description of different levels of view-scape protection (visual resources) in Appendix R (Recreation Management Frameworks). Burning is not proposed for any VRM-1 class parcel, *i.e.*, landscapes that BLM has classified as offering visitors great scenic views (Map 3, p. 232). Burning *is* authorized on all Monument units that are classified as VRM-3, which includes: Indian Island, Freeman Island, Trinka Rock, Victim Island, Blind Island (in East Sound), Cattle Point, Turn Point, Chuckanut Rock, Kellett Bluff, Point Colville, Watmough Bay, Chadwick Hill marsh, much of Iceberg Point, Richardson Rock, Lopez Pass (Sperry), Kanaka Bay Rocks, King Rocks, President Channel (Ocean, Orcas), Eliza Island, and Alden Point (Patos). The Proposed Plan

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<sup>7</sup> P Dunwiddie, cited frequently by the Proposed Plan in support of burning Monument landscapes, has conceded in publications and scientific meetings that the Yellow Island experiment required herbicides and annual re-plantings. It is erroneous to attribute any positive changes in the Yellow Island landscape to burning alone.

does not include any specific justification for using fire (and consequently, herbicides) on any of these islands and coasts, many of which host cultural materials, rare plants, and nesting seabirds.

The observed unintended ecological consequences (or ineffectiveness) of using fire as a habitat tool in the San Juan Islands is not the sole issue. Burning trees release greenhouse gases, as well as particulates and VOCs that degrade air quality. The Proposed Plan skirts the issue of air quality by citing a report that in actuality simply states that forest-fire air quality models cannot be applied reliably to fires as small as what BLM plans in the Monument. Absence of applicable models is not evidence that there are no significant adverse impacts. The only honest statement that BLM can make is that the air quality impacts of the prescribed fires they contemplate are at present unknown. Such circumstances call for small-scale trials and monitoring (if at all) before authorizing burning on a scale of hundreds of acres.

A series of prescribed burns on a scale of tens of acres or more may reduce fuel loads on Monument lands, but produces more greenhouse gases and worse air quality than mechanical removal of woody debris and shrubs, and as described above, can have adverse impacts on native herbaceous plant communities. Reducing wildfire risk is not a cogent justification for prescribed fires in the few remaining neglected native meadowlands of the San Juan Islands. Hand-clearing and re-planting offers better results with less risk and fewer adverse environmental impacts.

But the Proposed Plan argues that while burning may promote non-native species, they can then be killed with herbicides, after which native species can be re-introduced. First, we can find no example of this three-stage strategy resulting in an island landscape that has more native species—in diversity and abundance—than it did prior to treatment.<sup>8</sup> One reason for this that is evident in post-fire assessments we have made of island landscapes is that woody fires sterilize the soil, killing the community of bacteria, fungi, lichens and arthropods that recycle nutrients; they do not reappear for many years—in the case of mycorrhizal fungi, not for decades. Another reason is that the San Juan Islands have had farms, sheep pastures, gardens, and European weeds for over 150 years and the seed bank within and surrounding public lands is very weedy. Use of herbicides after burning slows the recovery of living soils, and favors weeds that live in lawns and farms where they have had an opportunity to adapt to herbicides

We are greatly alarmed by the Plan's embrace of herbicides as a habitat restoration tool. Herbicides do not discriminate between native and invasive non-native plant species. Herbicides specific to grasses kill the island's few remaining native grass species; broad-leaf herbicides are just as lethal to native wildflowers as they are to invasive "weeds". It is no defense to argue that native species can be re-planted following burning and/or herbicide treatment. Even if sufficient backup stocks of native seeds collected from the same islands and populations were available—which they are not—the practical problem of beating out re-colonization of bare ground by the

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<sup>8</sup> This includes Yellow Island, which The Nature Conservancy originally purchased in 1972 because it had an unusually high density of native wildflowers (thus its name). After decades of costly treatments, the island looks pretty much like it did in photographs published at the time TNC purchased it.

weeds can be insurmountable, as public land managers in the San Juan Islands have found before. Potential treatment areas in the islands are surrounded by farms and homes that represent vast stocks of non-native seeds spread by wind, runoff, and birds. In the past, public land managers in the islands have found themselves caught in a cycle of burning, spraying, replanting, and weeding by burning and spraying again. In the long term, it would be a better use of restoration resources—and far less destructive to birds, butterflies, reptiles, rare plants, mosses, lichens, and nearshore fish and shellfish—to skip the burning and herbicides, and simply clear and replant by hand.

Additionally, islands are the worst possible environment for the use of toxic products for land management because treatment areas tend to be very close to—and typically uphill from seashores.<sup>9</sup> Aerosol drift, rain runoff, even windblown plant debris and dust can transport toxics easily from treatment areas to beaches and nearshore waters. There is abundant evidence that juvenile Chinook salmon continue to consume insects for at least part of their diet as they migrate through the islands' waters every summer.<sup>10</sup> They also rely seasonally on nearshore crustaceans, especially as larval crabs. These are compelling reason to minimize applications of pesticides and herbicides in coastal areas of the islands—in particular, on small Monument islands of only a few acres in extent, surrounded by shallow marine waters.

We note that while some active herbicide ingredients were long believed to be specific to the physiology of plants, with no possible adverse effects on animals—in particular, the synthetic auxins (plant hormones) such as glyphosate—more recent research have called this assumption into question. While the biochemical mechanisms remain unclear, auxin-like herbicides including glyphosate do in fact appear to affect the health of mammals<sup>11</sup> as well as insects such as bees.<sup>12</sup> It should not be assumed, absent independent toxicological evaluations, that any commercially available field herbicides are nontoxic to beneficial insects such as pollinators, or to the birds and bats that eat insects affected by herbicide spraying. To the extent that herbicides may adversely affect insects and the animals that prey on them, herbicides degrade critical ecological functions that are necessary for maintaining our native island landscapes.

Our December 2018 public comment on the draft plan recommended that herbicides only be applied (if at all) by hand to selected individual plants, and always sparingly, to avoid collateral damage to native plants, birds and other small animals that feed on plants and their seeds, and beneficial insects such as pollination. Nevertheless, the Proposed Plan approves the application

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<sup>9</sup> See p. 91 (marine areas) and Table 16 p. 104 (wetlands) of the Proposed Plan. Such uses may violate state laws restricting the application of herbicides to aquatic habitats. *RCW* 90.48.445. The Proposed Plan states that aerial spraying would be “unlikely” but authorizes it nonetheless (p. 81).

<sup>10</sup> J Chamberlin et al., *Assessing early marine growth in juvenile Chinook salmon: factors affecting variability in individual growth in Northern Puget Sound* (Seattle: Long Live the Kings, 2017).

<sup>11</sup> JP Myers et al., Concerns over use of glyphosate-based herbicides and risks associated with exposures: a consensus statement, *Environmental Health* 15: 19 (2016), DOI 10.1186/s12940-016-0117-0.

<sup>12</sup> E.g. EVS Motta, K Raymann and NA Moran, Glyphosate disturbs the gut microbiota of honey bees, *Proceedings of the National Academy of Sciences* 115 (41): 10305-10310.

of herbicides to 71 acres of the Monument per year for 20 years (Table 16, pp 103-104) for a total of 1,420 acres, or a little over two square miles. Since to be effective, most herbicides are sprayed at a ratio of two to five pounds per acre, we are looking at a total of roughly two to four tons of toxic compounds added to the soils, air, and nearshore waters of San Juan County. Surely this is incompatible with state and county policies and laws. BLM did not even attempt to estimate the impact of this toxic load on forage fish, salmon, crab or bivalves in our nearshore.

There is a reference to biological control agents in the Proposed Plan but we can find no specifics. In light of the great variety of pathogens or predators that could be candidates for use, ranging from BT (mentioned in the Draft RMP) to wolves, it is reckless to authorize this approach in such general terms. Likewise, the Proposed Plan refers to reducing populations of non-native, invasive animals such as European rabbits and foxes, and native but overly abundant Columbian deer and Canada geese, without sufficient details to evaluate the impacts of the methods chosen on non-target and protected species. Trapping, shooting, and/or poisoning rabbits (for example) involve different costs, risks, and collateral damage—not to mention public political optics—and these factors could differ significantly between, say, Cattle Point and Iceberg Point. BLM has not provided adequate information to justify any particular animal-control measures scientifically.

### **Landscape renewal and “restoration”**

Rather than setting out specific plans for the protection and recovery of locally sensitive, rare or threatened species found solely or predominantly on Monument lands, such as California Buttercup or White-Topped Aster, the Proposed Plan advances a general philosophy and tool kit for restoring “departed grasslands” [sic]. This is not accepted scientific terminology. Regardless, the Proposed Plan asks us to take on faith that burning and spraying herbicides in the Monument will produce better habitats. Better in precisely what ways? Which species benefit? And if we ask, “how does this Plan ensure the survival of [say] California Buttercups at Iceberg Point?” there is no answer to be found. The message to the public seems to be: Burn, spray, and pray.

We note that Proclamation 8497 begins with a recitation of representative plant species that define the unique value and distinctiveness of this National Monument as a place that must be protected for study and education. The plant and animal species that can be seen and studied in the National Monument (and decreasingly if at all, anywhere else in the San Juan Islands) are its “objects and values” that the Plan must address. It is no answer that some examples of these species can be found elsewhere—on private lands, in other counties or states. The Proclamation is unambiguous that the Monument exists to perpetuate them *here*. As far as we can determine, BLM has failed to address directly the impact of the Proposed Plan on any one of the species that the residents of San Juan County regard as distinctive, important, or threatened, when they came together nearly a decade ago to press Congress and the White House for “permanent protection” of these coasts and islets.

Apart from its practical defects, the generality and ambiguity of the Proposed Plan with respect to the fate of target species invites doubt that the Plan addresses the “objects and values” of this Monument to the extent required by law. At the same time, the Proposed Plan authorizes

the introduction of additional species into Monument landscapes without consideration of what impacts this activity may have on the species Proclamation 8497 aimed at protecting. Under the Proposed Plan, BLM would (1) use Monument lands for the *ex situ* conservation and propagation of rare plant species that are not native to the Monument; and (2) seed Monument lands with plant species that BLM believes will be more adapted to future climate change, such as species that are native to warmer, drier regions of the Pacific Coast (“facilitated migration”; see pp. 12, 32-33). BLM has already attempted and failed to propagate Golden Paintbrush (a rare regional endemic with no records in the Monument) at Iceberg Point ACEC on a very small scale. The impact of *ex situ* conservation of such plants on existing Monument plant communities would depend fundamentally on scale: a few dozen meter-square cages scattered over hundreds of acres might scarcely be noticeable, while acres of treatment, with deer-fencing or other forms of protection, would involve ground disturbance and displacement of existing plant species to an extent that is incompatible with the “objects and values” explicitly set out by the Proclamation.

Facilitated migration is still more problematic. Research in our region indicates that most woody species can adapt their distribution to current rates of climate change with a lag of only a few decades.<sup>13</sup> Natural adaptive potential and rate vary among species and has only begun to be evaluated under current conditions.<sup>14</sup> There is no *a priori* basis for BLM to select woody species to bootstrap into Monument landscapes; but there is a considerable risk that incomplete human knowledge will result in introducing species that will either fail to thrive, or thrive at the expense of the existing woodland community in the Monument, without enhancing the long-term viability or diversity of Monument ecosystems. The Proposed Plan hints that the target of this strategy is Garry Oak, but as we documented in our comment on the Draft RMP, this species has been only a very minor and geographically restricted component of the islands’ vegetation for 6-8 thousand years, and projections by Parks Canada biologists suggest that climate change will make central Salish Sea lowlands less favorable for oaks, rather than more. Oaks are few and scattered in the Monument, largely restricted to small shrubby patches on some small islands. If Garry Oaks are not expanding naturally within the Monument as the climate changes, it would seem illogical to introduce more of them where they are not currently established.

It would take a lengthy technical paper to address all of the scientific misstatements and unsubstantiated, erroneous assertions of ecological reality in the Monument that we have found in the Proposed Plan. With regard to wetlands, for example, the Proposed Plan insists that there is no wetland on Patos Island. Although it admits that there is a seasonally flooded depression—*i.e.*, a vernal pool—in the same breath it argues that this cannot be a wetland because it lacks a “hydric soil”. The definition of hydric soil in geology is a permanently or seasonally saturated soil. BLM’s assertion about Patos is not only internally inconsistent, but simply wrong. We visited and

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<sup>13</sup> See *e.g.* SN Aitken et al, “Adaptation, migration or extirpation: climate change outcomes for tree populations,” *Evolutionary Applications* 1 (1): 95-111 (2008).

<sup>14</sup> A Kremer et al, “Long-distance gene flow and adaptation of forest trees to rapid climate change,” *Ecology Letters* 15 (4): 378-392 (2012).

documented the Patos wetland in 2010 and shared findings with BLM at that time; we found not only deep organically rich soils characteristic of wetlands but woody species consistent with the area's seasonally saturated conditions. Likewise, the Proposed Plan misidentifies the dominant understory at Patos as "Rhododendron" (in actuality it is Salal), and then, after reciting that Patos woodlands encompass several Priority 1 and Priority 2 communities surveyed by state botanists, declares without any evidence whatsoever that the understory must be "thinned" (p. 113).

The Proclamation refers specifically to a wetland at Point Colville that we have repeatedly explored over the years. It has shallow sandy clay-rich soils overlaying coarse glacial tills, and is conspicuous for its mix of Spruce and Hemlock with the Douglas Fir and cedar that populate most of the Colville woodland. Without any scientific source or citation whatsoever, the Proposed Plan declares this small wet woodland to be degraded by "facultative" wetland species—an ignorant misuse of the term, which applies properly to plants than often live in wetlands but do not have to. The "facultative" species must be removed by logging, burning, and herbicides to liberate the (unnamed) obligate wetland species. This is nonsense, and might be funny if found on a college exam rather than a dead-serious land management plan that cost over a million taxpayer dollars to prepare. Plan elements like this cast doubt on the scientific integrity of the Proposed Plan as a whole.<sup>15</sup>

### **Previous plans and standards**

We note that while SJINM includes a large number of small islands, rocks and reefs, by far the largest part of its acreage falls within the previously designated Iceberg Point-Colville Area of Critical Environmental Concern (ACEC), for which a management plan was adopted in 1990 that expressly subordinates recreational use to the conservation of habitats and species. The federal law under which the Proposed Plan was developed—Public Law 94-579, the Federal Land Policy and Management Act (FLPMA)—directs the BLM in the formulation of any land use plan to "give priority to the designation and protection of areas of critical environmental concern" FLPMA sec. 202(c)(3). We understand this to mean that BLM must show how the Proposed Plan gives the Iceberg-Colville ACEC *at least as much* protection as the 1990 plan. In particular, BLM must show that the Proposed Plan, where it authorizes treatments such as burning and applying herbicides, will "protect" the habitats and species within the ACEC, which are also amongst the "objects and values" of the Monument. It is insufficient for the Plan simply to assert that the proposed actions will restore, enhance, or stabilize populations of plants such as California Buttercup or White-Topped Aster. BLM must use a systematic scientific approach. FLPMA 202(c)(2). We can find no applicable scientific citations or specific data in the Proposed Plan.

Congress directed BLM in FLPMA sec. 102(8) to adopt public land management plans:

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<sup>15</sup> Inconsistent assertions of scientific fact abound in the Proposed Plan, *e.g.* justifying restrictions on boat operation at Watmough on forage fish spawning in Alternative B, and on juvenile Chinook rearing in Alternative A. In 12 years' research at Watmough we have seen juvenile salmon but no forage fish spawning.

... in a manner that will protect the quality of scientific, scenic, historical, ecological, environmental, air and atmospheric, water resource, and archeological values; that, where appropriate, will **preserve and protect certain public lands in their natural condition**; that will provide food and habitat for fish and wildlife and domestic animals; and that will provide for outdoor recreation and human occupancy and use [*emphasis supplied.*]

We appreciate the biological fact that the lands comprising the SJINM, like nearly all lands within the United States, have been affected by human activity, including economic uses such as farms and livestock raising, as well as pollution and introduced exotic species. The term “natural” as it is used in FLPMA is accordingly problematic because it implies an impossible goal, and seems to dismiss the possibility of restoring or recreating lost or degraded habitats. It is not unreasonable to interpret the 21<sup>st</sup> century meaning of this Congressional directive as “protect, and if feasible, restore closer to their historical condition”. We maintain, however, that the burden on BLM is to show convincingly, based on scientific studies applicable to local conditions, that any proposed action that modifies a protected landscape, is likely to “restore” species or functions that were there previously.

We can find no such technical content in the Proposed Plan. What is more disappointing, is that some of the “tools” proposed for landscape management—burning, herbicides—are likely to produce irreversible adverse impacts such as the loss of native plant diversity and dominance of Eurasian pasture grasses that has been reported for treated areas of San Juan Island National Historical Park after 15 years of effort.

As scientists, we remain unconvinced that burning or herbicides can do more good than harm to public lands in the San Juan Islands. We recommend instead a precautionary approach, which relies on gentler tools such as hand-clearing, re-seeding, and transplanting, with a focus on species most likely to adapt to a warming climate with more extreme weather events; while continuing to study the effects of fire and perhaps managed herbivores (“biological control”) on non-Monument lands where sensitive, rare, protected species are not at risk.

## **Conclusion**

As scientists with more than 15 years research experience on the coasts and islands that comprise the SJINM today, including botany, wildlife biology, entomology and cultural resources surveys; and as island residents and voters that participated in the campaign to establish the Monument; we protest the Proposed Plan substantively and procedurally. The Plan abounds with errors and unsubstantiated assertions about the ecology of the Monument and the islands. Its emphasis on recreation, including trails and camping, is inimical to the scientific and educational objectives of Proclamation 8497, which is the governing federal directive, and may also violate state and local laws. The Proposed Plan also adopts a sweeping new landscape “restoration” project employing extensive clearing, burning, herbicide spraying, and introduction of species not previously found in the Monument—a total of more than two square miles burnt and sprayed

over 20 years—an approach that has been tried on other public lands and found to reduce rather than promote native plant diversity on other public lands in the islands.

We observe in the current BLM planning process a consistent theme of disregarding the express objectives of Proclamation 8497: protection, science, education. Instead, the Draft RMP focused on enhancing recreational opportunities even where there would necessarily be adverse impacts on habitats and species explicitly identified in the Proclamation. The Proposed Plan has added another destructive priority that is difficult to square with the Proclamation: “restoration” involving a scientifically sketchy attempt to convert a large part of the Monument from forest to “grasslands”. Under the guise of recreation and restoration, the Proposed Plan contemplates an unprecedented increase in physical, chemical, and biological disturbance of ecosystems that the people of San Juan County, local scientists like ourselves, and President Obama wished to protect.

The Proposed Plan is inconsistent with the Proclamation, applicable state and local laws, and the expressed interests and trust of islanders. It is scientifically unsound and based to a great extent on unsupported assertions and unreferenced documents. As such it does not comply with the procedural or substantive requirements of FLPMA and should not be implemented without substantial revisions based on science and law.