Midpeninsula Regional
Open Space District

R-21-38
Meeting 21-09
March 10, 2021

AGENDA ITEM 4

AGENDA ITEM

Selection of an Additional Topic for the Science Advisory Panel

GENERAL MANAGER'S RECOMMENDATION

Authorize the General Manager to direct the Science Advisory Panel to prepare a literature review on the topic of electric bicycles, and more specifically to address the following question:

- What do the scientific literature and practitioner studies suggest about the benefits and impacts of class 1 electric bike access on multi-use recreational trails in natural areas?

SUMMARY

The Science Advisory Panel (SAP), comprised of the San Francisco Estuary Institute (SFEI) and Point Blue Conservation Science (Point Blue), has undertaken three topics of study over the past year, all of which will be completed by fall of 2021. The SAP's contract and budget also allow for a fourth topic. The Board of Directors (Board) has expressed interest in collecting information to inform future policies regarding electric bicycle (e-bike) use on Midpeninsula Regional Open Space District (District) preserves. District staff are currently undertaking e-bike studies (R-21-13) which can be complemented by a literature review conducted by the SAP. Therefore, the General Manager recommends that the Board direct the SAP to study the benefits and impacts of e-bike access as the fourth topic under this contract.

BACKGROUND

On November 19, 2019 (R-19-149) the Planning and Natural Resources (PNR) Committee reviewed thirteen potential topics for the SAP. The full Board selected the first three topics on January 8, 2020 (R-20-05). The first topic, Conservation Grazing, is complete, and SFEI presented their findings to the Board on November 4, 2020 (R-20-26). The second and third topics, Landscape Scale Monitoring and Benefits/Impacts of Recreation, will be completed by fall of 2021. Interim findings on these topics were presented to the Board on February 24, 2021 (R-21-31).

When the Board selected the first three topics, they retained the remaining 10 committee-reviewed topics (see Attachment 1) for future consideration. However, e-bikes have since emerged as a topic of great interest to both the Board and the public, and one that warrants further review before finalizing policy decisions regarding e-bike use in District preserves. Board interest and the complementary timing with the District e-bike studies makes e-bikes a desirable selection for the SAP's fourth topic.

DISCUSSION

Certain park and open space agencies in the region allow class 1 and class 2 e-bikes (usually not class 3)[1] where nonmotorized bikes are already permitted, including on unpaved trails (R-19-29). Currently e-bikes are not allowed on District trails except when used as an Other Power-Driven Mobility Device (OPDMD), consistent with the Americans with Disabilities Act and District policy, and through the ongoing paved trails e-bike pilot that is occurring at Ravenswood Open Space Preserve and Rancho San Antonio County Park/Open Space Preserve.

Studies comparing e-bikes to nonmotorized mountain bikes are limited in both number and scope, and District staff have not conducted a thorough recent review in the last year of those that do exist. Such a review would be a suitable task for the SAP, who can also lend their scientific expertise in helping interpret the findings as they apply to District lands.

The District is currently undertaking studies to collect local observational data on e-bike use and impacts. Along with the one-year pilot of class 1 and 2 e-bike use on paved trails at Rancho San Antonio and Ravenswood Preserves, the District is pursuing an agreement to conduct a survey study of existing class 1 e-bike use on unpaved trails at a partner agency's lands where the use is already established. Both studies will conclude before or during the winter of 2021. The studies will yield information about e-bike use patterns, potential impacts to enforcement or emergency response, visitor perceptions of e-bikes, and anecdotal observations of trail or natural resource impacts. As a complement to these efforts, a thorough review by the SAP of relevant literature from scientific sources and open space and recreation practitioners can provide insight into questions the studies may not answer due to their short duration and limited scope. The SAP's work would provide some scientific basis for future policy decisions and clarify where more information may be needed. If the SAP were to begin their literature review this quarter, their final report would coincide with the completion of the District e-bike studies.

Alternatively, the Board could select a question from Attachment 1, which would preclude using the SAP to look at the benefits and impacts of e-bike use.

FISCAL IMPACT

The Board approved an amendment to the SAP contract on February 24, 2021 (R-21-31) for an amended contract total of $219,000. There are sufficient funds in the Fiscal Year 2020-21 (FY21) budget to begin work on a fourth topic, and the remaining necessary funding will be requested as part of the FY22 Budget and Action Plan.

BOARD AND COMMITTEE REVIEW

This item is being brought directly to the full Board of Directors given full Board interest. Previous Board and committee materials related to this item:

- August 28, 2019 – Award of Contract for SAP
  - Board Report
  - Minutes

[1] E-bikes fall into three classifications:

- Class 1: a "low speed pedal-assisted bicycle" with an electric motor that provides assistance only when the rider is pedaling, up to 20 mph.
- Class 2: a "low speed throttle-assisted bicycle" that may be propelled exclusively with an electric motor (without pedaling) up to 20 mph.
- Class 3: a "speed pedal-assisted electric bicycle" with an electric motor that provides assistance only when the rider is pedaling, up to 28 mph.

- November 19, 2019 – Review of Potential Topics
  - Planning and Natural Resources Committee Report
  - Minutes
- January 8, 2020 – Topic Selection
  - Board Report
  - Minutes
- November 4, 2020 – Grazing Topic Findings
  - Board Report
  - Minutes
- February 24, 2021 – Year One Findings for Monitoring, Recreation Topics; Contract Amendment (minutes for this meeting were not approved at the time of writing this report)
  - Board Report

PUBLIC NOTICE

Public notice was provided as required by the Brown Act. Mailings and email notifications were sent to trail user group, ADA, natural resource management, and SAP interested parties lists.

CEQA COMPLIANCE

This item is not a project subject to the California Environmental Quality Act.

NEXT STEPS

Should the Board select the General Manager's recommended topic as Topic 4 for the SAP, SFEI would work with the existing District e-bikes staff team to establish a detailed scope within the available budget and then begin their literature review. Staff anticipates the SAP process for this topic will look similar to the previous topics, e.g. one or more workshops held with the District and SFEI teams to discuss prominent studies and refine research direction, a draft report to be reviewed by the District team and General Manager, and a final report that would coincide with reports on the District e-bike studies. This would conclude the initial contract with the SAP. Staff may return to the Board during the action planning process for FY23 for authorization to issue a new contract and continue the SAP, pending the final results of the SAP two-year contract, along with a request for Board selection of a fifth topic either from the existing list (Attachment 1) or based on new emerging issues and recommendations from the General Manager.

Attachment:
1. Topics for Potential Future Study

Responsible Department Head:
Kirk Lenington, Natural Resources Department

Prepared by:
Sophie Christel, Management Analyst I, Natural Resources Department

Attachment 1: Topics for Potential Future Study

Through the process of developing potential topics for the Panel, a total of 13 topics were suggested through both the staff brainstorming workshop as well as by the Board in advance of the PNR Committee review. This attachment presents those topics not recommended for the first year of study as these topics may be considered in future years.

This list of topics is presented in two sections; the first section includes those topics that received PNR Committee interest, and the second section includes the additional topics. The potential scope of topics 1 and 2 were developed when they were presented to the Board as recommended options for selecting topics on January 8th, 2020 (R-20-05), along with the initial three topics that the Board selected.

Potential Future Topics with Committee Interest:

This selection of topics would also include those topics that were not selected by the Board, yet were recommended as potential topics that were not able to be included in the first year's study.

1. **What are the benefits (biodiversity, ecosystem services, survival rate, mitigation effectiveness, etc.) and costs of restoration planting compared to seeding or other revegetation options? How does this vary by species?**

Description: This question will review existing revegetation methods (including planting, seeding, and others) to provide information on short- and long- term costs and benefits as well as guidance on metrics that would determine a successful restoration program. This information may lead to suggestions of which revegetation method is preferable for a given budget, vegetation community, or target plant species.

Value to District: With this information, staff would be positioned to select the mitigation techniques specific to the plant community that would likely be most successful and cost-effective. The results would also help staff negotiate alternative mitigation plans with regulatory agencies. The District currently spends significant funds on restoration planting, so this information could lead to cost savings if more cost-effective methods are identified while also increasing ecosystem resiliency.

Proposed Scope/Approach: A panel of restoration scientists and practitioners will be engaged to provide expert opinion on this question. A literature review will also be conducted; however, we anticipate very few published works on this topic. Expert opinion will provide a preliminary understanding of the existing revegetation methods and information on the short- and long-term costs and benefits of each. Given additional information from District staff regarding the priority vegetation communities, the Panel would also provide guidance on metrics that would determine a successful restoration program based on case studies and suggestions of which revegetation method is preferable for a given location, ecosystem, and target plant species.

2. **What is the status of the soils in the various ecosystems of the District (chaparral, oak woodland, redwoods, grazing, farm lands, wetlands, etc.,) and what steps can the District take to improve and/or maintain them?**

Description: Soils are the complex "foundation" for plant and all life. Soil is a mixture of mineral particles, organic materials, air, water, and living organisms. An inventory and monitoring of soils from different ecosystems will give the District a baseline in which to assess ecosystem health.

Value to District: As we understand more, the District can implement adaptive management techniques to restore and protect our lands, such as amending or altering degraded soils.

Proposed Scope/Approach: There are numerous metrics for evaluating soil health. The most appropriate metrics for use will depend on how the District would like to target its adaptive land management for soil health, as different types of land use and land cover are susceptible to different types of soil degradation. For instance, the District could consider land management to improve soil health in agricultural areas (e.g. measured as compaction and nutrient retention), for stability (as opposed to erosion along stream banks), for climate change mitigation (e.g. measured as carbon storage), and for human health (e.g. measured as contamination from historic or current land use). Research into this topic would yield a guidance document outlining informative and commonly used soil sampling techniques and metrics of soil health. This information would be tailored to develop a specific soil monitoring plan that could be carried out by a local consulting firm, with guidelines outlining what conditions are likely indicators of soil health and degradation. This information can be built into a Request for Proposals by the District, targeted for local environmental consulting firms. Future proposals should provide a robust plan for standardized soil monitoring plan to assess the status of the soils in the various ecosystems and/or land use types of the District. Proposals should also identify steps the District can take to improve and/or maintain them.

3. **What does a "sustainable" or "restorable" quarry operation and reclamation plan look like?**

Description: If we assume some amount of need for cement for the Bay Area, what are the best possible processes that will allow for minimal, but successful restoration. Are there areas where a mine location would least impact key hydrological functions and least harm the ecosystem?

Value to District: Answers to these questions may inform District negotiations with Lehigh Cement Plant and Quarry and our advocacy with Santa Clara County.

4. **Where on the San Mateo Coast should the District focus fisheries restoration efforts in light of climate change?**

Description: Research into this topic would yield a comprehensive report detailing restoration techniques beyond barrier removal, such as sediment removal, reducing streambank erosion, and streambed improvements. Fisheries restoration is a particular challenge in agricultural areas, where water is diverted from creeks for agricultural use.

Value to District: This information will help the District develop policies and prioritize projects that enhance stream restoration and management for Coho Salmon and Steelhead Trout.

5. **What are land conservation and management options to enable climate change-induced species migration and minimize species loss?**

Description: Research into this topic will identify species that are likely to require assisted migration and compile existing projections of species distributions under climate change. Based on the habitat requirements of a suite of focal species, the District can then design stewardship strategies that enable species movement and acquisition strategies that emphasize tracts that are a high priority for conservation.

Value to District: This information will help the District form strategies that are proactive rather than reactive to changes in plant and animal distributions as a result of climate change, and thereby be better positioned to seek grants that would fund efforts to assist species migrations (e.g. improving permeability and connectivity across the landscape). However, this question may be answered in part by the current Santa Cruz Mountains Climate Resilience Project.

Additional Topics Raised through Staff and Board Input:

6. **How should the District and partners decide on the most cost-effective strategy for invasive species management across District and private properties?**

Description: Research into this topic would yield a report of the costs and benefits of different invasive species management approaches. Using examples such as Slender False Brome and Sudden Oak Death, this research would examine whether approaches like up-front early detection and rapid response treatment or ongoing adaptive management are more cost-effective strategies to eradicate or manage invasive species or invasive ecosystems (sets of species) that may cross preserve boundaries.

Value to District: The District expends significant resources on invasive species management. This topic could save the District staff time and dollars by developing tools to either deal with an invasive species across multiple properties or within one property or preserve.

7. **What is the status of ecosystem cycles for the Midpeninsula area, or perhaps for the nine-county Bay Area? What are the most important and low hanging steps we could take to improve them?**

Description: The three main cycles of an ecosystem are the water cycle, the carbon cycle and the nitrogen cycle. These three cycles working in balance are responsible for carrying away waste materials and replenishing the ecosystem with the nutrients necessary to sustain life. If any of these three cycles should become unbalanced, the effects on the ecosystem can be catastrophic.

Value to District: Sustainability is a seven generation and longer commitment to continue providing in the future, what our natural environment provides us and itself today - or rather

yesterday given the recent degradation. The District can help provide to local leaders and residents information on (a) how we are doing in overall sustainability from the water/carbon/nitrogen cycle point of view, (b) how the District is contributing to improving this sustainability, and (c) how the District can improve its operations.

8. **How do fire and habitat resilience, carbon sequestration, and biodiversity develop and emerge as co-benefits from late-seral forest management?**

Description: Research into this topic would yield a report of the ecosystem services that a healthy, managed late-seral forest provides. It would include an evaluation of fire response under different fuels treatments, habitat improvements for a diverse wildlife community, and capacity to store carbon in different forest types.

Value to District: The District is currently drafting a forest management plan for La Honda, which could incorporate findings from this research on late-seral forest management. While this question would not likely provide new information for staff, a synthesis report could be useful to demonstrate the benefits of forest management to the public.

9. **How should the District select plant propagule sites, factoring in climate change, genetic integrity and diversity, disease resistance, and inbreeding/outbreeding? Should we be planting seeds from future climate analog sites rather than current analog sites? How does this selection vary by species?**

Description: A review of the latest research on climate-analog mapping and propagule sourcing (e.g. locating the source of seed for revegetation) will provide a current understanding of the potential benefits (e.g. disease resistance, climate resilience, fire resilience) and costs (e.g. loss of local genetic integrity) of importing non-local propagules during restoration plantings. Climate-analog mapping pinpoints a modern comparable environment that matches the potential future climate of a restoration site. This research will also highlight which species are most vulnerable, and therefore in need of assistance to persist further into the future.

Value to District: By implementing a new strategy for propagule selection specifically for climate resilience, the District would likely improve the odds of success of current restoration efforts to endure the change in climate. The District will be able to manage proactively rather than reactively to changes in plant and animal distributions as a result of climate change.

10. **What is the historical ecology of beavers on the San Mateo Coast?**

Description: This line of research would yield a compilation of the habitat requirements of beavers, a mapping of the historical range of beavers on the San Mateo Coast, and a description of their role as ecosystem engineers. By felling trees and building dams, beavers have a great influence on ponds, wetlands, salmon, birds, and aquifer recharge. It would also highlight examples of using beaver dam analogs in areas without beavers to alter flow and create habitat.

Value to District: This information would provide guidance for the potential reintroduction of beavers to San Mateo County as well as a framework for incorporating beaver dam analogs to assist with recovery of fish such as Coho Salmon in the absence of beavers.