



Midpeninsula Regional
Open Space District

R-19-29
Meeting 19-08
March 27, 2019

AGENDA ITEM 8

AGENDA ITEM

Contract Amendment with Oregon State University to Test Revegetation Sites for Soil Diseases

GENERAL MANAGER'S RECOMMENDATIONS

1. Authorize the General Manager to execute a contract amendment with Oregon State University for additional environmental consulting services in the amount of \$11,000, for a not-to-exceed contract amount of \$101,000.
2. Authorize a 10% contingency of \$1,000 to cover unforeseen conditions, for a total contract amount not-to-exceed \$102,000.

SUMMARY

Scientists have identified several species of *Phytophthora* (water mold diseases) in native plant nurseries and at restoration and mitigation planting sites in California. In past years, the Midpeninsula Regional Open Space District (District) has unknowingly used nursery plants with these pathogens. Other agencies have identified the same issue at their restoration and mitigation sites. In June 2017, the District entered into contract with Oregon State University (OSU) to test revegetation sites for *Phytophthora* for a total not-to-exceed amount of \$90,000. Since that time, the science of pathogen detection has evolved and scientists, using new techniques, can provide a better understanding of the level of *Phytophthora* infestation at revegetation sites. The General Manager recommends awarding Oregon State University a contract amendment for an additional \$11,000, for a not-to-exceed total of \$101,000. In addition, the General Manager recommends a 10% contingency in the amount of \$1,000 to cover unforeseen conditions, for a total contract amount not-to-exceed \$102,000. The Fiscal Year 2018-19 Budget includes sufficient funds for work through end of June. Additional funds will be included in next year's budget to complete the contracted work.

BACKGROUND

Scientists have identified several exotic species of *Phytophthora* (water mold diseases, the translation of the Latin meaning 'the plant-destroyer') at native plant nurseries and revegetation areas in California over the past several years. Scientists have described over 170 different species of *Phytophthora*, and many more have yet to be described. The District and many other agencies inadvertently planted *Phytophthora*-infested nursery stock into native habitats during restoration and mitigation projects. Recent research shows that some *Phytophthora* infestations have the potential to impact native ecosystems and revegetation goals. If *Phytophthora* were to spread into surrounding wildlands, scientists consider control impossible. Many *Phytophthora* species appear to have a wide range of host plant species and can occur in many different types

of vegetation communities. While many species of *Phytophthora* may not present a threat, there is the possibility of extensive damage to native plant communities from a select few invasive species. For example, *Phytophthora ramorum* (the exotic pathogen that causes Sudden Oak Death) has killed millions of oak trees in California forests since its escape from commercial nurseries. In addition, *Phytophthora infestans* spread in Ireland, causing the Irish Potato Famine.

The Animal and Plant Health Inspection Service (APHIS) listed *Phytophthora quercina* as the number one *Phytophthora* species of concern for introduction into the United States in 2010. In the report, APHIS stated that it would “likely cause severe economic impacts to the nursery trade, as well as environmental impacts on native species” if it ever reached U.S. soil. Early in 2014, the San Francisco Public Utility Commission (SFPUC) planted 9,000 San Francisco Bay Area native plants as mitigation for a capital improvement project. SFPUC detected *Phytophthora tentaculata* infecting toyons, a highly desired shrub that butterflies, birds, and mammals use as a food source. In 2017, APHIS confirmed the detection of *Phytophthora quercina*. This led the SFPUC to destroy the 9,000 already planted plants and to start remediation of the mitigation site through the intensive activity of soil solarization, raising the soil temperature high enough to kill the pathogen.

DISCUSSION

In March 2017, staff issued a Request for Qualifications and Proposals (RFQP) for environmental consulting services to test soil for the presence of *Phytophthora* diseases and recommend remedial actions at previously planted and future revegetation sites in San Mateo and Santa Clara Counties. Based on the results of the RFQP, the Board of Directors (Board) approved a contract with OSU (R-17-85) in June 2017. OSU has extensive experience with research design as well as testing and treating *Phytophthora* in nurseries and wildlands.

In the winter of 2017, OSU collected soil and plant material from 20 revegetation sites dating between 1997 and 2017 to assess *Phytophthora* diversity and distribution. These sites included seven (7) planned revegetation sites and 18 adjacent, minimally disturbed areas. OSU identified nine (9) *Phytophthora* species using rudimentary techniques. Supplementary DNA analysis detected a minimum of 25 species in the soil samples. Important amongst these was the detection of *Phytophthora tentaculata*, the emerging pathogen infecting multiple native plant species commonly used during restoration plantings, and *Phytophthora quercina*, a pathogen contributing to oak decline in Europe.

The analysis done by OSU of DNA extracted directly from soil has become a useful tool in describing the historical presence of *Phytophthora* at District preserves and may be used to quantify the overall infestation level of a site. This current methodology, however, cannot distinguish between ‘relic DNA’ (DNA from ‘dead’ pathogens that are incapable of causing disease) and DNA extracted from viable pathogens. Relic DNA may persist in soils for years, if not decades. Therefore, actual levels of *Phytophthora* that can cause disease are likely overestimated. To aid the interpretation of the previous analysis, OSU proposes to add an additional analysis using a new scientific process to test samples collected in winter 2018.

Given the surprising abundance of *Phytophthora* in some preserves, OSU is confident this extra analysis will provide an estimation of the spread and levels of biologically active *Phytophthora* that pose a detriment to the natural environment at a given site. Sites determined to have only

‘relic DNA” from the new analysis may not need to be remediated due to the very low risk posed on the surrounding wildlands, allowing the District to prioritize activities in areas of high risk.

FISCAL IMPACT

This contract spans multiple fiscal years. There are sufficient funds in the FY2018-19 Natural Resources department budget to cover the cost of the recommendation through end of June. Additional funds will be budgeted in the FY2019-20 Natural Resources budget to cover the remaining cost of the contract.

The recommended action is not funded by Measure AA.

BOARD COMMITTEE REVIEW

A Board committee did not previously review this item.

PUBLIC NOTICE

Public notice was provided as required by the Brown Act. In addition, staff sent the public notice to 91 interested parties by US mail and/or electronic mail.

CEQA COMPLIANCE

The action described in this item consists of information collection and minor alteration of vegetation on existing, officially designated wildlife management areas. The results of the information collection will help the District further protect and improve wildlife habitat. It will not result in serious or major disturbance of any environmental or historical resources; removal of healthy, mature scenic trees; impacts to environmental resources of hazardous or critical concern; significant effects; or cumulative impacts. None of the actions will disturb vistas from a scenic highway. These sites are not located on a hazardous waste site. Therefore, this action is categorically exempt under Sections 15302 (Minor Alterations of Land) and 15306 (Information Collection) of the California Environmental Quality Act (CEQA) Guidelines.

NEXT STEPS

Upon approval by the Board, the General Manager will amend the agreement with OSU to conduct additional research. Upon completion of the analysis of revegetation sites, OSU will provide remediation recommendations and preventative strategies in a final report. Staff will then identify which potential remedial actions to pursue based on capacity, costs, and other factors to manage for *Phytophthora* and minimize impacts to the natural resources District-wide. In addition, staff will develop Best Management Practices (BMPs) to prevent the introduction of and minimize the contamination of *Phytophthora* species at District Preserves. Staff will present this information to various Departments, the Planning and Natural Resources Committee, and then the full Board to seek additional input on the development of the remediation plan and BMPs.

Responsible Department Head:
Kirk Lenington, Natural Resources

Prepared by:

Coty Sifuentes-Winter, Senior Resource Management Specialist, Natural Resources

Contact person:

Amanda Mills, Resource Management Specialist II, Natural Resources