Invasive Species Management Plan

for

North Wallops Island UAS Airstrip

National Aeronautics and Space Administration

Goddard Space Flight Center

Wallops Flight Facility

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Introduction

Invasive species are any species that are not native to a given ecosystem and whose introduction causes, or is likely to cause, economic or environmental harm and/or harm to human health (EO 13112 on Invasive Species 1999). Because of their ability to alter natural ecosystems and diminish the abundance or survival of native species, invasive species are recognized as a threat to biodiversity and in some instances, to native species survival. It is estimated that over 40 percent of the species protected by the Endangered Species Act are at risk primarily because of nonnative, invasive species (Pimentha et al. 2005).

A Natural Heritage Survey of North Wallops Island was conducted in the summer and fall of 2011 by the Natural Heritage Division of the Virginia Department of Conservation and Recreation (DCR). The survey found two invasives, Phragmites (*Phragmites australis*) and Japanese Sedge (*Carex kobomugi*), in the north Wallops Island area (DCR, 2012). Phragmites is the predominant invasive species of concern and will be addressed in this plan. Annual monitoring will be conducted for other invasive species and appropriate control actions will be taken as necessary.

Species Description

Phragmites is a tall (15 feet) perennial grass with creeping rhizomes that may make a dense vegetative mat. In the United States and other countries, Phragmites is generally recognized as an invasive species; sometimes guilty of altering the structure of local ecosystems and rendering them a monoculture. Thick rhizomal growth and the accumulation of litter from the aerial shoots prevent other species from becoming established. These monocultures decrease the value wetlands as habitat for wildlife.

Rhizomes generate roots and stalks at regularly spaced nodes. An individual plant can multiply into a large stand through its rhizomes. Rhizomes may exceed 60 feet in length, grow more than 6 feet per year and readily grow into new plants when fragmented. In addition to facilitating reproduction, Phragmites rhizomes can penetrate the soil to a depth of more than 6 feet. This allows the plant to reach low-lying ground water and tolerate a variety of conditions, including dry upland sites and wetlands with water depths exceeding 2 feet. Phragmites experiences the majority of its vegetative growth during the summer months of June and July. Flowering and seed production occur during August and early September. In September and October, food is transported to the rhizomes and seeds are shed in autumn months. The plant remains dormant through the winter months and the seeds germinate from April to late May (USFWS, 2007).

Phragmites is an opportunistic species, taking advantage of the disturbances to the local vegetative community caused by disruptions of the natural state, such as those caused by fire or earth moving activities. Construction of an UAS airstrip on north Wallops Island is likely to create conditions conducive to Phragmites colonization.

Establishment of Phragmites stands along the footprint of the UAS airstrip cannot be tolerated for operational as well as ecological reasons. The presence of the tall stems in the clear zones along the edges of the runway would impede pilot lines of sight, while the stiff stems would be hazardous to the fragile airframes of the UAS should they lose control and veer from the airstrip. It is therefore necessary to prevent the establishment of new Phragmites stands in the UAS airstrip footprint and, to the extent practical, reduce those stands already extant in the vicinity.

Implementation of Controls (Adapted from Norris, et.al., 2002)

Restricted Construction Equipment Access - To prevent the accidental introduction of Phragmites during construction or maintenance activities, all tracked equipment involved in earth work will be inspected and cleaned to remove any rhizomes and seeds prior to arrival on-site. If tracked equipment is used in earth work on a portion of a project where Phragmites is known to exist, this portion of the earthwork will be conducted last, or the equipment will be cleaned prior to use on any portion of the site that is known to be free of Phragmites.

Cleaning Methods for Construction Equipment - Construction equipment shall be cleaned by using physical means and hand tools, such as brushes, brooms, rakes or shovels, on all track and bucket/blade components to adequately remove all visible dirt and plant debris. If water is used, the water/slurry shall be contained so as to restrict introduction of Phragmites rhizomes and seeds into the project site as well as to prevent off- site introduction during surplus material disposal.

Post Construction/UAS Airstrip Operations Control - Cleared areas surrounding the UAS airstrip will be mowed periodically to prevent colonization of new stands of Phragmites in this area. The purpose of the mowing is threefold: to maintain a low, safe surface for UAS that accidentally veer from the airstrip, to help maintain a line of site for the UAS pilots, and to prevent growth of young shoots of Phragmites.

Mowing will occur during summer months of June, July, and early August when most of the food reserves are in the aerial portion of the plant. Mowing will cease in mid-August. Small stands of Phragmites in the immediate vicinity of the UAS airstrip will be hand- sprayed with a Glyphosate- type herbicide during the post-tasseling stage (early September) when nutrients are being transported back to rhizomes so that the herbicides will translocate to the rhizome system as well. Alternatively, an Imazapyr-type herbicide may be applied from June until the first hard

frost. Care will be taken to ensure that other herbaceous species are not sprayed indiscriminately; spraying will not occur when winds exceed five miles per hour.

Results of implementing this Invasive Species Management Plan will be evaluated yearly, and this Plan will be revised as needed to adapt control techniques to the special characteristics and environmental conditions of this area. WFF will consult with Virginia DCR on adaptive management strategies for Phragmites control.

Selective Control of Phragmites Outside the UAS Airstrip Clear Zones - In its 2011 reinventory of the north Wallops Island area, DCR discovered the presence of Florida thoroughwort (*Eupatorium anomalum*). This plants species is known to have only one other occurrence in Virginia and the Wallops Island population is the northernmost example of the species. On Wallops Island, the species is found along the both edges of the unpaved road that extends south-eastward along the footprint of the proposed UAS airstrip and beyond. WFF will keep this road open in those portions of roadway beyond the UAS airstrip where the plant occurs by mowing the road edges early in the season to reduce the growth of woody species and the Phragmites. Should Phragmites still threaten *E. anomalum* clusters, the Phragmites will hand cut to a height below the first leaf and an herbicide will be applied to the stems by hand (URI-CELS, 2012.) *E. anomalum* clusters will be identified and periodically monitored by DCR as funding support from WFF to DCR allows.

References

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