PRINCE OF WALES 2023 INVASIVE PLANT TREATMENT PLAN

The purpose of this document is to show that project design features (PDFs) are applied and non-target resources are protected as outlined in the *Prince of Wales Landscape Level Analysis* (Final Environmental Impact Statement (EIS, 2018) and Record of Decision (ROD, 2019).[1] The use of herbicides on invasive plant populations was authorized in order to "keep the infestation of noxious and invasive weeds on NFS lands to a minimum in accordance with Executive Order 13112 (1999), which directs me to prevent introduction of, and detect, control, and monitor invasive species."

The mechanical treatments presented in the 2022 Invasive Treatment Plans are incorporated by reference. Herbicide use is the focus of the work included in this plan. Application of aminopyralid, glyphosate, and imazapyr are authorized under the ROD to efficiently control invasive infestations. All state and federal laws regulating pesticide use will be followed and all design features in the ROD will be implemented (Appendix A, from the ROD Appendix 1). Methods will also adhere to the FEIS, ROD, the Forest Service's National Resources Management (NRM) protocol, and R10 invasive species guidelines. Appropriate Pesticide Use Proposal (PUP) permits have been completed and added to the project record.

Herbicide treatments under this plan are focused on: 1) using herbicides to control infestations that have been manually treated in the past, 2) treating infestations at project areas where ground will be disturbed. Sites include Shaheen Watershed Restoration area, Roadside populations (2340, 3000C, 2340, 2030W), El Capitan Recreation Area, Twelvemile Cabin, One Duck Trail, and small infestations of bull and Canada thistle on Kosciusko. Site-specific targets and application details are included below, with site-specific maps in Appendix B. We are planning a hands-on pesticide applicator training and that would treat infestations at the Thorne Bay Ranger Station. The GIS shp file has been placed in the project record.

If time allows and/or through partnerships, we may also treat the large infestations of reed canarygrass on the Kosciusko road system, and infestations of orange hawkweed, common St. Johnswort and purple foxglove in the Shaheen watershed road system. These infestations are targeted because there is ongoing project activity in these areas and controlling roadside infestations will help to prevent spread of invasives into disturbed ground at project sites. However, these infestations are a lower priority and likely a subset will be treated based on proximity to project activities.

Monitoring and evaluation of effectiveness, as well as any adaptive management decisions, will adhere to the ROD, FEIS, and latest approved Long-term Plan. Details are provided in Appendix C. At least 50% of sites treated in one year will be monitored the following year. Monitoring and efficacy will be based on amount of pesticide used each year for a given infestation, per NRM protocol using the Invasive Species Mobile software.

Target Species and Specific Treatment

All treatment activities would include project design features detailed in the POW LLA. Glyphosate, and aminopyralid use would include treatments up to water's edge with application moving from the edge of water away from the water body. The corresponding shapefile has treatments by species. The SUID (Treatment ID) is the unique identifier for querying sites.

Herbicide application will be with either a hand sprayer or backpack sprayer. The backpack sprayer is calibrated at 50 gallons per acre. At this rate, a 1.5% solution glyphosate is the equivalent of approximately

[1] Refer to ROD Issue 1, Appendix 1: Activity Cards 34 and 35, and Appendix 2: Invasive Plants for additional details.

3.1 lbs. active ingredient (a.i.) per acre; a 2% solution is the equivalent of 3.9 lbs. a.i. per acre. A 0.08% solution aminopyralid is the equivalent of 6 ounces/acre application rate (0.09 lbs. a.i./acre).

Proposed locations and treatments by site type are as follows:

1. Roads: Many of these infestations have been manually treated in the past. These treatments have targeted thistle infestations. Infestations would be treated with a backpack sprayer and aminopyralid.

Project Area	Plant	Acres	Herbicide	Solution	Infestation ID	Existing/ New	Priority
NFS Road 2030W	Bull thistle	2.252	aminopyralid	0.08%	TNF-TBRD_2030W_002_CIVU	manual 2022	1
NFS Road 2340	Canada thistle	3.541	aminopyralid	0.08%	100554P000254	manual 2022	1
NFS Road 2340	Perennial sowthistle	1.361	aminopyralid	0.08%	100554P000255	manual 2022	1
NFS Road 3000C	Bull thistle	2.95	aminopyralid	0.08%	100554P000999Y13	new	1
NFS Road 3000C	Canada thistle	1.901	aminopyralid	0.08%	100554P000481Y12	manual 2022	1

2. Recreation and administrative areas. These include several infestations at the Thorne Bay compound, Japanese knotweed near Twelvemile cabin, reed canarygrass along the One Duck Trail, and mixed infestations in the El Cap recreation area. These infestations are targeted because they contain highly invasive species, have been managed in the past and/or are at project sites that have upcoming ground disturbing work that could allow for infestations to spread. Reed canary grass and Japanese knotweed would be treated with glyphosate, while all other species would be treated with aminopyralid.

Project Area	Plant	Acres	Herbicide	Solution	Infestation ID	Existing / New	Priority
El Capitan Rec Area Improvements	Common St. Johnswort	0.105	aminopyralid	0.08%	100554P000168	new	1
El Capitan Rec Area Improvements	Common St. Johnswort	0.852	aminopyralid	0.08%	100554P000169	new	1
El Capitan Rec Area Improvements	Oxeye daisy	0.36	aminopyralid	0.08%	100554P000170	new	1
El Capitan Rec Area Improvements	Oxeye daisy	0.233	aminopyralid	0.08%	100554P000171	new	1
El Capitan Rec Area Improvements	Oxeye daisy	0.148	aminopyralid	0.08%	100554P000172	new	1

El Capitan Rec Area Improvements	Oxeye daisy	0.423	aminopyralid	0.08%	100554P000173	new	1
El Capitan Rec Area Improvements	Oxeye daisy	0.162	aminopyralid	0.08%	100554P000174	new	1
El Capitan Rec Area Improvements	Oxeye daisy	0.27	aminopyralid	0.08%	100554P000175	new	1
El Capitan Rec Area Improvements	Sneezewort	0.271	aminopyralid	0.08%	100554P000038Y20	new	1
One Duck Trail Reconstruction	Reed canarygrass	1.017	glyphosate	1.50%	100551P000047Y12	new	1
One Duck Trail Reconstruction	Reed canarygrass	0.499	glyphosate	1.50%	TNF-CRD_2016_017_PHAR3	new	1
One Duck Trail Reconstruction	Reed canarygrass	0.1	glyphosate	1.50%	TNF-CRD_ODT_003_PHAR3	new	1
One Duck Trail Reconstruction	Reed canarygrass	0.1	glyphosate	1.50%	TNF-HEUT0232_PHAR3	new	1
Twelvemile Cabin	Japanese knotweed	0.777	glyphosate	2.00%	100551P000015	manual 2022	1
Twelvemile Cabin	Japanese knotweed	0.472	glyphosate	2.00%	100551P000016	manual 2022	1
Twelvemile Cabin	Japanese knotweed	0.001	glyphosate	2.00%	100551P000575Y22	manual 2022	1
Twelvemile Cabin	Purple foxglove	0.656	aminopyralid	0.08%	100551P000018	new	2
Twelvemile Cabin	Purple foxglove	0.0005	aminopyralid	0.08%	TNF-CRD_2120_007_DIPU	new	2
Thorne Bay Admin site	Bull thistle	0.999	aminopyralid	0.08%	TNF-TBRD_FW_001_CIVU	manual 2021	1
Thorne Bay Admin site	Canada thistle	0.001	aminopyralid	0.08%	TNF-TBRD_FW_001_CIAR4	manual 2021	1
Thorne Bay Admin site	Orange hawkweed	0.009	aminopyralid	0.08%	TNF-TBRD_FW_001_HIAU	manual 2012	1
Thorne Bay Admin site	Orange hawkweed	2.193	aminopyralid	0.08%	TNF-TBRD_SBR_006_HIAU	manual 2012	1
Thorne Bay Admin site	Oxeye daisy	0.149	aminopyralid	0.08%	TNF-TBRD_FW_001_LEVU	manual 2012	1
Thorne Bay Admin site	Oxeye daisy	2.119	aminopyralid	0.08%	TNF-TBRD_SBR_006_LEVU	manual 2012	1

Thorne Bay Admin site	Reed canarygrass	0.049	glyphosate	1.50%	TNF-TBRD_FW_001_PHAR3	manual 2012	1

3. Shaheen watershed restoration. Infestations of bull thistle, oxeye daisy, orange hawkweed, and reed canarygrass are largely roadside, with limited infestations moving into natural areas. Infestations near ground disturbing activities (for example, stream access trails, tree sourcing etc.) would be prioritized for treatment, along with less widespread species including Canada thistle, Common St. Johnswort, spotted knapweed, and stinking willie.

Project Area	**Plant**	**Acres**	**Herbicide**	**Solution**	**Infestation ID**	**Existing / New**	**Priority**
Shaheen Watershed Restoration	Bull thistle	17.346	aminopyralid	0.08%	100554P000463Y12	manual 2017	1
Shaheen Watershed Restoration	Canada thistle	0.148	aminopyralid	0.08%	100554P000409	new	1
Shaheen Watershed Restoration	Canada thistle	0.523	aminopyralid	0.08%	100554P000462Y12	new	1
Shaheen Watershed Restoration	Canada thistle	0.58	aminopyralid	0.08%	100554P000486Y12	new	1
Shaheen Watershed Restoration	Spotted knapweed	0.463	glyphosate	1.50%	100554CESTMFY17001	new	1
Shaheen Watershed Restoration	Spotted knapweed	0.013	glyphosate	1.50%	100554P000011Y18	new	1
Shaheen Watershed Restoration	Spotted knapweed	0.001	glyphosate	1.50%	TNF-TBRD_925_047_CEBI2	new	1
Shaheen Watershed Restoration	Spotted knapweed	0.001	glyphosate	1.50%	TNF-TBRD_925_047_CEBI2	new	1
Shaheen Watershed Restoration	Stinking willie	0.113	aminopyralid	0.08%	100554P000012Y18	new	1
Shaheen Watershed Restoration	White sweetclover	0.402	glyphosate	1.50%	100554P000006Y18	new	1
Shaheen Watershed Restoration	White sweetclover	0.002	glyphosate	1.50%	100554P000029Y20	new	1
Shaheen Watershed Restoration	White sweetclover	0.004	glyphosate	1.50%	100554P000035Y20	new	1
Shaheen Watershed Restoration	Yellow salsify	0.01	aminopyralid	0.08%	TNF-TBRD_2050_041_TRDU	new	1
Shaheen Watershed Restoration	Common St. Johnswort	0.001	aminopyralid	0.08%	100554P000016Y19	new	2

Shaheen Watershed Restoration	Common St. Johnswort	0.383	aminopyralid	0.08%	100554P000333	new	2
Shaheen Watershed Restoration	Common St. Johnswort	0.001	aminopyralid	0.08%	TNF-TBRD_2050.3_007_HYPE	new	2
Shaheen Watershed Restoration	Orange hawkweed	0.414	aminopyralid	0.08%	100554P000215	new	2
Shaheen Watershed Restoration	Orange hawkweed	0.001	aminopyralid	0.08%	TNF-TBRD_2050.6_013_HIAU	new	2
Shaheen Watershed Restoration	Orange hawkweed	0.049	aminopyralid	0.08%	TNF-TBRD_2050_043_HIAU	new	2
Shaheen Watershed Restoration	Orange hawkweed	0.099	aminopyralid	0.08%	TNF-TBRD_2054.3_008_HIAU	new	2
Shaheen Watershed Restoration	Orange hawkweed	0.099	aminopyralid	0.08%	TNF-TBRD_2054_013_HIAU	new	2
Shaheen Watershed Restoration	Orange hawkweed	0.001	aminopyralid	0.08%	TNF-TBRD_2054_024_HIAU	new	2
Shaheen Watershed Restoration	Orange hawkweed	0.001	aminopyralid	0.08%	TNF-TBRD_925_018_HIAU	new	2
Shaheen Watershed Restoration	Orange hawkweed	0.019	aminopyralid	0.08%	TNF-TBRD_2050_090_HIAU	new	1
Shaheen Watershed Restoration	Reed canarygrass	0.1	glyphosate	1.50%	TNF-TBRD_2050_089_PHAR3	new	1
Shaheen Watershed Restoration	Reed canarygrass	0.149	glyphosate	1.50%	TNF-TBRD_2050_090_PHAR3	new	1
Shaheen Watershed Restoration	Reed canarygrass	0.1	glyphosate	1.50%	TNF-TBRD_2050_091_PHAR3	new	1
Shaheen Watershed Restoration	Reed canarygrass	0.099	glyphosate	1.50%	TNF-TBRD_2051_002_PHAR3	new	1
Shaheen Watershed Restoration	Reed canarygrass	0.1	glyphosate	1.50%	TNF-TBRD_2051_003_PHAR3	new	1
Shaheen Watershed Restoration	Reed canarygrass	0.099	glyphosate	1.50%	TNF-TBRD_2051_004_PHAR3	new	1
Shaheen Watershed Restoration	Reed canarygrass	0.1	glyphosate	1.50%	TNF-TBRD_2051_005_PHAR3	new	1
Shaheen Watershed Restoration	Reed canarygrass	0.1	glyphosate	1.50%	TNF-TBRD_2051_006_PHAR3	new	1

Shaheen Watershed Restoration	Reed canarygrass	0.149	glyphosate	1.50%	TNF-TBRD_2051_007_PHAR3	new	1
Shaheen Watershed Restoration	Reed canarygrass	0.1	glyphosate	1.50%	TNF-TBRD_2051_008_PHAR3	new	1
Shaheen Watershed Restoration	Reed canarygrass	0.1	glyphosate	1.50%	TNF-TBRD_2051_009_PHAR3	new	1
Shaheen Watershed Restoration	Reed canarygrass	0.149	glyphosate	1.50%	TNF-TBRD_2051_010_PHAR3	new	1
Shaheen Watershed Restoration	Reed canarygrass	0.1	glyphosate	1.50%	TNF-TBRD_2051_011_PHAR3	new	1

4. Kosciusko road system. (a)The two thistle populations on Kosciusko are targeted for treatment in 2023. The remaining reed canarygrass populations would be treated through an agreement if time allows. The majority of these infestations are roadside, but some have moved into natural areas off the road. Infestations will be prioritized based on their proximity to project sites and potential to move into natural areas. Of the infestations on Kosciusko, 36 are on FS land and 89 are on non-FS land and were inventoried under the Good Neighbor Authority. We would only treat infestations on non-FS land in conjunction with partners.

Project Area	**Plant**	**Acres**	**Herbicide**	**Solution**	**Infestation ID**	**Existing/ New**	**Priority**
Kosciusko GNA	Bull thistle	0.012	aminopyralid	0.08%	100554P000530Y12	manual 2012	1
Kosciusko GNA	Canada thistle	0.148	aminopyralid	0.08%	100554P000582Y14	manual 2014	1
Kosciusko GNA	Reed canarygrass	2.899	glyphosate	1.50%	100554P000438Y12	new	2
Kosciusko GNA	Reed canarygrass	0.09	glyphosate	1.50%	100554P000452Y12	new	2
Kosciusko GNA	Reed canarygrass	0.085	glyphosate	1.50%	100554P000453Y12	new	2
Kosciusko GNA	Reed canarygrass	0.026	glyphosate	1.50%	100554P000456Y12	new	2
Kosciusko GNA	Reed canarygrass	0.02	glyphosate	1.50%	100554P000472Y12	new	2
Kosciusko GNA	Reed canarygrass	0.171	glyphosate	1.50%	100554P000580Y14	new	2
Kosciusko GNA	Reed canarygrass	0.777	glyphosate	1.50%	100554P000585Y14	new	2
Kosciusko GNA	Reed canarygrass	0.152	glyphosate	1.50%	100554P000591Y14	new	2
Kosciusko GNA	Reed canarygrass	0.178	glyphosate	1.50%	100554P000597Y14	new	2
Kosciusko GNA	Reed canarygrass	10.625	glyphosate	1.50%	100554P000609Y14	new	2

Project Area	Plant	Acres	Herbicide	Solution	Infestation ID	Existing/ New	Priority
Kosciusko GNA	Reed canarygrass	0.196	glyphosate	1.50%	100554P000615Y12	new	2
Kosciusko GNA	Reed canarygrass	0.097	glyphosate	1.50%	100554P000630Y12	new	2
Kosciusko GNA	Reed canarygrass	0.154	glyphosate	1.50%	100554P000636Y12	new	2
Kosciusko GNA	Reed canarygrass	0.089	glyphosate	1.50%	100554P000637Y12	new	2
Kosciusko GNA	Reed canarygrass	0.622	glyphosate	1.50%	100554P000644Y12	new	2
Kosciusko GNA	Reed canarygrass	0.379	glyphosate	1.50%	100554P000646Y12	new	2
Kosciusko GNA	Reed canarygrass	0.001	glyphosate	1.50%	100554P94670	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94671	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94672	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94673	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94674	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94675	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94676	new	2
Kosciusko GNA	Reed canarygrass	2.993	glyphosate	1.50%	100554P94677	new	2
Kosciusko GNA	Reed canarygrass	1.994	glyphosate	1.50%	100554P94678	new	2
Kosciusko GNA	Reed canarygrass	0.298	glyphosate	1.50%	100554P94679	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94680	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94681	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94682	new	2
Kosciusko GNA	Reed canarygrass	0.001	glyphosate	1.50%	100554P94683	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94684	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94685	new	2
Kosciusko GNA	Reed canarygrass	0.001	glyphosate	1.50%	100554P94686	new	2

Project Area	Plant	Acres	Herbicide	Solution	Infestation ID	Existing/ New	Priority
Kosciusko GNA	Reed canarygrass	0.996	glyphosate	1.50%	100554P94687	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94688	new	2
Kosciusko GNA	Reed canarygrass	0.498	glyphosate	1.50%	100554P94689	new	2
Kosciusko GNA	Reed canarygrass	0.0005	glyphosate	1.50%	100554P94690	new	2
Kosciusko GNA	Reed canarygrass	0.001	glyphosate	1.50%	100554P94691	new	2
Kosciusko GNA	Reed canarygrass	0.1	glyphosate	1.50%	100554P94692	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94693	new	2
Kosciusko GNA	Reed canarygrass	0.0005	glyphosate	1.50%	100554P94694	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94695	new	2
Kosciusko GNA	Reed canarygrass	0.1	glyphosate	1.50%	100554P94696	new	2
Kosciusko GNA	Reed canarygrass	0.298	glyphosate	1.50%	100554P94697	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94698	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94699	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94700	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94701	new	2
Kosciusko GNA	Reed canarygrass	0.298	glyphosate	1.50%	100554P94702	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94703	new	2
Kosciusko GNA	Reed canarygrass	0.001	glyphosate	1.50%	100554P94704	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94705	new	2
Kosciusko GNA	Reed canarygrass	2.724	glyphosate	1.50%	100554P94706	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94707	new	2
Kosciusko GNA	Reed canarygrass	0.088	glyphosate	1.50%	100554P94708	new	2
Kosciusko GNA	Reed canarygrass	2.829	glyphosate	1.50%	100554P94709	new	2

Project Area	Plant	Acres	Herbicide	Solution	Infestation ID	Existing/ New	Priority
Kosciusko GNA	Reed canarygrass	0.001	glyphosate	1.50%	100554P94712	new	2
Kosciusko GNA	Reed canarygrass	0.001	glyphosate	1.50%	100554P94713	new	2
Kosciusko GNA	Reed canarygrass	0.001	glyphosate	1.50%	100554P94714	new	2
Kosciusko GNA	Reed canarygrass	2.493	glyphosate	1.50%	100554P94715	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94716	new	2
Kosciusko GNA	Reed canarygrass	0.1	glyphosate	1.50%	100554P94717	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94718	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94719	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94720	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94721	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94722	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94723	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94724	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94725	new	2
Kosciusko GNA	Reed canarygrass	0.398	glyphosate	1.50%	100554P94726	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94727	new	2
Kosciusko GNA	Reed canarygrass	0.996	glyphosate	1.50%	100554P94728	new	2
Kosciusko GNA	Reed canarygrass	0.298	glyphosate	1.50%	100554P94729	new	2
Kosciusko GNA	Reed canarygrass	0.001	glyphosate	1.50%	100554P94730	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94731	new	2
Kosciusko GNA	Reed canarygrass	0.1	glyphosate	1.50%	100554P94732	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94733	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94734	new	2

Project Area	Plant	Acres	Herbicide	Solution	Infestation ID	Existing/ New	Priority
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94735	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94736	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94737	new	2
Kosciusko GNA	Reed canarygrass	0.1	glyphosate	1.50%	100554P94738	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94739	new	2
Kosciusko GNA	Reed canarygrass	0.1	glyphosate	1.50%	100554P94740	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94741	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94742	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94743	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94744	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94745	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94746	new	2
Kosciusko GNA	Reed canarygrass	0.498	glyphosate	1.50%	100554P94747	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94748	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94749	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94750	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94751	new	2
Kosciusko GNA	Reed canarygrass	0.1	glyphosate	1.50%	100554P94752	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94753	new	2
Kosciusko GNA	Reed canarygrass	0.009	glyphosate	1.50%	100554P94754	new	2
Kosciusko GNA	Reed canarygrass	0.1	glyphosate	1.50%	100554P94755	new	2
Kosciusko GNA	Reed canarygrass	0.001	glyphosate	1.50%	100554P94756	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94757	new	2

Project Area	Plant	Acres	Herbicide	Solution	Infestation ID	Existing/ New	Priority
Kosciusko GNA	Reed canarygrass	0.298	glyphosate	1.50%	100554P94758	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94759	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94760	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94761	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94762	new	2
Kosciusko GNA	Reed canarygrass	0.298	glyphosate	1.50%	100554P94764	new	2
Kosciusko GNA	Reed canarygrass	0.249	glyphosate	1.50%	100554P94765	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94766	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94767	new	2
Kosciusko GNA	Reed canarygrass	0.1	glyphosate	1.50%	100554P94768	new	2
Kosciusko GNA	Reed canarygrass	0.498	glyphosate	1.50%	100554P94769	new	2
Kosciusko GNA	Reed canarygrass	0.001	glyphosate	1.50%	100554P94770	new	2
Kosciusko GNA	Reed canarygrass	0.498	glyphosate	1.50%	100554P94771	new	2
Kosciusko GNA	Reed canarygrass	0.149	glyphosate	1.50%	100554P94772	new	2
Kosciusko GNA	Reed canarygrass	0.099	glyphosate	1.50%	100554P94773	new	2
Kosciusko GNA	Reed canarygrass	0.199	glyphosate	1.50%	100554P94774	new	2
Kosciusko GNA	Reed canarygrass	0.1	glyphosate	1.50%	100554P94775	new	2
Kosciusko GNA	Reed canarygrass	0.31	glyphosate	1.50%	CNF-USFS-2000643-15-PHAR3	new	2

Appendix A. Activity Cards 34 and 35

Card 34
Activity: Invasive Plant Treatments – Manual and Mechanical

Description: Control, contain and eradicate non-native, invasive plant populations with manual and/or mechanical treatments. Most of the known non-native, invasive plant infestations occur in developed areas, such as along roadsides, at administrative sites, rock pits, and recreation areas.

Objectives: These treatments are used to achieve the Forest-wide goal of maintaining ecosystems capable of supporting the full range of native and desired non-native species and ecological processes. Specifically, through the objective to manage the Forest in order to reduce, minimize, or eliminate the potential for introduction, establishment, spread, and impact of non-native, invasive species.

Related Actions: Potential for seeding post-treatment.

Methods: Methods vary by species, infestation size, life-stage, and growing substrate but typically involve actions that physically remove and destroy portions of plants to cause mortality or reduce the reproductive potential. Hand pulling can effectively remove above- and below-ground portions of plants while limiting disturbance to the surrounding vegetation. Similar effects are achieved when using hand tools to dig invasive plants (*e.g.*, shovels, pulaski, weed fork), but the potential for soil disturbance and non-target vegetation damage increases. Weed torches destroy above ground portions of plants and may cause heat damage to nearby non-target vegetation. Ground tarping is achieved by covering the entire extent of smaller invasive plant infestations. Above ground portions of invasive plants can be removed via multiple methods including hand tools, string trimmer and chainsaws.

Equipment Used: Hand tools, weed torch, ground tarp, string trimmer, chainsaw, brush saw

What are the general guidelines constraining this activity?

General Project Design Features (PDF):

Prepare a specific treatment plan which includes the location, target species, and method of treatment (manual/mechanical).

Annually, a weed assessment review team will be assembled to review the planned treatments and to ensure PDFs are applied; integrated treatment methods will be determined by factors such as species and location of the site and based on priorities detailed in the annual treatment plan.

Forest Plan, Chapter 4 Forest-wide Standards and Guidelines, Invasive Species Control and Management: INV3

What are the resource-specific guidelines?

Silviculture

This activity does not require review by a Certified Silviculturist.

Timber

None

Transportation

Access to work sites is generally available on existing roads. Off-highway vehicles are commonly used when highway vehicle access is not available. Follow applicable travel regulations, and when necessary obtain permits to use the closed road system.

Wildlife

All applicable laws, BMPs, and Forest Plan direction must be followed.

The removal of invasive plants may improve the abundance and availability of native plants for subsistence users.

Fisheries Direct mortality due to trampling: If any manual or mechanical treatments require working in the water, activities would be planned through timing to avoid impacts to redds or disturbance to spawning fish. Apply erosion control (*e.g.*, silt fences) and revegetation (*e.g.*, mulching, native grass seeding, planting) measures for manual treatment where detrimental soil disturbance or de-vegetation may result in the delivery of sediments.
Hydrology Specific project areas to be reviewed for hydrologic concerns once identified. Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution. Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.
Soils/Wetlands Soil disturbance should be kept to a minimum. If an area greater than 100 square feet of mineral soil is exposed by pulling or burning, a Tongass Soil Scientist should be consulted to review and make mitigation recommendations. Avoid using a weed torch on dry days. Adhere to R10 Soil Quality Standards. R10 BMPs: 12.5, 12.17, 14.8 and 14.25 National Core BMPs: AqEco-2 and Veg-2
Botany Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Affects determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).
Invasive Plants A qualified Botanist/Ecologist will evaluate invasive plant populations to determine appropriate method and tool for control. Implementation of treatment methods will be coordinated to meet Forest Plan Objectives. A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants. See Introduction for additional WBMPs 1-6 that apply to all activities.
Geology/Karst If on karst lands, all proposed sites would be reviewed by the Forest Geologist upon implementation.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional .information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest- wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Recreation and non-recreation resource planners should consider opportunities to integrate their respective activities through coordinated planning. Planners should consider opportunities to enhance or develop recreation resources in conjunction with proposed activities, or identify substitutes for recreation resources that could be altered by non-recreation activities. Reference REC2 (II) in Chapter 4 of the Forest Plan regarding the Standards and Guidelines for integrated resource planning.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

A Minimum Requirements Analysis has been completed and approved by the Regional Forester for manual and mechanical treatments in designated wilderness. The Minimum Requirements Analysis concludes the activity can only be conducted when the principle objective is to protect or restore the Wilderness resource. The means of treatment used will be a site-specific, professional judgement.

No motorized equipment or mechanical transport will be used.

Crew size will be kept to 12 people or fewer.

Crew camps, if needed, will be located in previously used campsites if available, and crews will follow Leave-No-Trace guidelines (www.lnt.org).

Review treatment plans with the District wilderness manager to ensure Wilderness objectives will be met.

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Maintain Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Documented populations of Priority Invasive Species are targeted for treatment to reduce their population size and/or limit their spread using an integrated pest management approach. Manual and mechanical treatments will be selected at sites where Priority Invasive Species are known to occur and where the Invasive Plant Program Manager has determined they will achieve the desired level of control.

Integration Opportunities: Sites are often susceptible to invasive plant invasion following any ground disturbing activity. Post-implementation monitoring after these activities is useful to identify introduced invasive plant populations early and successfully control/eradicate before they become large infestations.

Card 35
Activity: Invasive Plant Treatments – Herbicidal

Description: Application of herbicides to eradicate, control or contain selected non-native, invasive plant populations. Most of the known non-native, invasive plant infestations occur in developed areas, such as along roadsides and at administrative sites, rock pits, and recreation areas.

Objectives: These treatments are used to achieve the Forest-wide goal of maintaining ecosystems capable of supporting the full range of native and desired non-native species and ecological processes. Specifically, through the objective to manage the Forest in order to reduce, minimize, or eliminate the potential for introduction, establishment, spread, and impact of invasive species. The eradication or control of existing and new infestations of district priority Invasive Species protects non-infested areas from future introduction by reducing the spread of non-native, invasive plants from existing populations. Herbicide treatments will focus on invasive plant infestations where repeated manual/mechanical treatments have been ineffective or invasive plants species whose life history and biology make them difficult to control using only manual and mechanical treatment methods.

Related Actions: Potential for seeding post-treatment and temporary area closures following herbicide application.

Methods: Methods vary by species and infestation size. Three herbicides (glyphosate, aminopyralid, and imazapyr) are under consideration for use under this activity. To reduce the risks of environmental harm, only aquatically approved formulations of glyphosate and imazapyr are proposed for use; no aquatic formulation is currently available for aminopyralid. Only aquatically approved surfactants will be used as adjuvants. Herbicide use is proposed using ground-based methods, such as spot and selective hand spraying and broadcast methods that targets individuals and groups of plants. No aerial application would be used. Generally herbicide treatments are approved under an annual plan that can be reviewed by interested specialists (see Appendix B).

Equipment Used: Backpack sprayers, hand sprayers, stem injectors, sponge, paint brush, cloth wick, ATV and boom sprayer.

What are the general guidelines constraining this activity?

information on the spill kit's contents and location as noted in FSM 2150 (USDA Forest Service 1994b) Pesticide-Use Management and Coordination and Handbook (FSH) 2109.14 (USDA Forest Service 1994a).

The maximum herbicide application rate will be restricted to the typical rate specified on the label.

No more than daily use quantities of herbicides will be transported to the project site. The exception is for crews staging at remote locations. Under these circumstances, crews can bring sufficient quantities of herbicides for the planned duration of the field work (*i.e.*, multiple days).

Herbicides and equipment used for application of herbicides will be transported in a leak-proof container, and will be secured to prevent tipping during transport.

To reduce the potential for spills, impervious material, such as a bucket or plastic, will be placed beneath mixing areas to contain any spills associated with mixing or refilling.

Follow herbicide label directions regarding the maximum daytime temperature permitted when applying (some types of herbicides volatilize in hot temperatures).

Herbicide spray equipment will be washed or rinsed a minimum of 150 feet from any waterbody, stream channel, or roadside ditch with flowing water or standing water present (or as far as possible from the waterbody where local site conditions do not allow a 150-foot setback). All herbicide containers and rinse water will be disposed of in a timely manner that will not cause exceeding the threshold of concern for aquatic systems (see Aquatic and Hydrology Herbicide Resource Report).

This project will use only aquatically approved surfactants. This feature will eliminate potential impacts from surfactants that have high levels of polyoxyethyleneamine (POEA), which, at high levels, can have adverse effects to aquatic species.

Marker dyes will be used to mark where herbicides have been applied to avoid over spraying.

To reduce potential spray drift, herbicides will not be applied when average wind speeds exceed the maximum wind speed stated on the product label. If a maximum average wind speed is not stated, herbicide application will be limited to times when wind speeds is less than 10 miles per hour.

Wind and other weather data will be monitored and reported for all pesticide applicator reports.

Herbicides will not be applied immediately prior to, during, or immediately after a rain event at the treatment site.

Avoid or minimize drift by using appropriate application equipment (for instance, nozzles that produce 200 to 800 micron diameter droplets, which are less prone to drift), adding drift reduction agents or adjusting equipment settings, such as nozzle pressure.

What are the resource-specific guidelines?

Silviculture

Review treatment plans with the District Silviculturist to determine if mitigations are necessary to avoid damage to non-target trees or vegetation.

Timber

None

Transportation

Access to work sites is generally available on existing roads. Off-highway vehicles are commonly used when highway vehicle access is not available and as a tool for broadcast spraying when needed. Follow applicable travel regulations, and when necessary obtain permits to use the closed road system.

Wildlife

All applicable laws, BMPs, and Forest Plan direction must be followed. Review treatment plans with District Wildlife Biologist.

The removal of invasive plant species may increase the abundance and availability of native plants for subsistence users.

TES: If any threatened, endangered candidate or Forest Service sensitive wildlife species are present in the treatment area, protective measures may include, but are not limited to, the following: 1) avoiding sensitive areas, 2) seasonal restrictions, or 3) treatment methods designed to avoid adverse impacts.
Heron/Raptor: If there are active rookeries and raptor nesting habitat, disturbance during the active nesting season (generally March 1 through July 31) will not occur or will be postponed. Local biologist will be consulted to determine appropriate distances and timing prior to implementation.

Ground nesting birds: Ground nesting birds shall be considered when planning for all treatment types. If ground nests are discovered, a wildlife biologist will be consulted to determine any mitigation measures. Generally, treatment should be postponed near ground nests until after the nesting and fledgling season (approximately mid-July).

In the event of a wildlife species status changing to Threatened, Endangered, or Sensitive, additional analysis will be completed to determine potential impacts.

Bald Eagles: Bald eagle habitat will be managed in accordance with interagency agreement established with United States Fish and Wildlife Service (USFWS) to maintain habitat to support the long-term nesting, perching, and wintering roosting capability for bald eagles.

If project activities are visible or can be heard from a nest, weed treatment specialist will stay at least 330 feet (100 meters) from the nest, unless the eagles have demonstrated tolerance for similar activities (USFWS Guidelines).

Black Bears: During implementation, weed treatment specialist will seek to reduce human-bear conflicts. Areas of concentrated bear activity will be avoided, especially during the fall.

During annual project planning, the need for additional protection for important bear foraging sites (*e.g.*, fishing sites) will be evaluated in addition to the Forest Plan Chapter 4 Standards and Guidelines for Riparian (Forest Plan, pp. 4-48 through 4-52) and Beach and Estuary Fringe (pp. 4-4 and 4-5).
See Herbicide Biological Assessment/Biological Evaluation for more information.

Fisheries

Review treatment plans with District Fisheries Biologist and implement, as appropriate the following BMPs:

R10 BMPs: 12.4, 12.6, 12.6a, 12.8, 12.9, 12.17, 15.1, 15.2, 15.4, 15.5

National Core BMPs: AqEco2, AqEco-3, Chem-1, Chem-2, Chem-3

Buffers and Spray Distance to Water (BMP 15.5; Chem-3):

Aquatic-based formulations of glyphosate and imazapyr may be applied up to water's edge and for emergent vegetation that grows within the water column using hand application (*e.g.*, wicking or wiping, stem injection) or spot spraying techniques.

No broadcast spraying within 100 feet of the water's edge or within the water column for any chemical.

In the marine environment, aquatic-based formulations of glyphosate and imazapyr can be applied down to the mean high tide line during low or outgoing tides with spot-spray and hand application methods.

Begin application of pesticide products nearest the aquatic habitat boundary and proceed away from the aquatic habitat; do not apply towards a waterbody.

Hydrology

Review treatment plans with the District Hydrologist. Use only aquatically approved pesticides in the proximity of waterbodies (glyphosate and imazapyr).

Follow relevant BMPs spelled out in the R10 Soil and Water Conservation Handbook and the National Core BMP Technical Guide (FS-990a) to ensure water quality standards are met for nonpoint sources of pollution.

National Core BMPs: AqEco-2, Chem-3, Chem-4

R10 BMP: 15.5

Upon implementation, the Hydrologist should consider all resource guidelines posed by Fisheries and Soils/Wetlands. Collaborate with the Fisheries Biologist and the Soil Scientist to address all relevant concerns.

Erosion Control (BMP 12.17; AqEco-2; Forest Plan 4-61):

Apply erosion control measures (*e.g.*, silt fences) and native revegetation (*e.g.*, mulching, native grass seeding, planting) for manual treatment where detrimental soil disturbance or de-vegetation may result in the delivery of measurable levels of fine sediment.

Buffers and Spray Distance to Water (BMP 15.5; Chem-3):

Aquatic-based formulations of all herbicides may be applied up to water's edge using hand application or spot spraying techniques. Aquatic-based formulations of glyphosate and imazapyr may also be used to treat emergent vegetation directly over water.

Herbicide spray equipment would not be washed or rinsed within 150 feet of any waterbody, stream channel, or roadside ditch with flowing or standing water present (or as far as possible from the waterbody where local site conditions do not allow a 150 foot setback). All herbicide containers and rinse water will be disposed of in a manner that would not cause contamination of waters.

The mixing and loading of herbicide(s) would take place a minimum of 150 feet from any waterbody, stream channel, or roadside ditch with flowing or standing water present (or as far as possible from the waterbody where local site conditions do not allow a 150 foot setback).

Public Water Sources (PWS) and Supplies (BMP 15.5; Chem-3):

Before authorizing herbicide use within public water system source watersheds, consult with Alaska Department of Environmental Conservation (ADEC), the affected municipality, and/or the owner or operator of the water system.

Review the completed Source Water Assessment for the PWS watershed, available from ADEC prior to authorizing weed management activities in these watersheds.

Herbicide use within 1,000 feet of domestic wells or public water supplies will be coordinated with the water user, manager, or local Municipal Water board.

Minimum distance to surface waters is 200 feet for herbicide application within municipal watersheds.

All herbicide application, storage, chemical mixing, refilling and post-application equipment cleaning is completed at least 200 feet from domestic wells or public water sources, and in accordance to label guidance relative to water contamination (BMP Chem-5).

All known unclassified (private) water sources will receive the same consultation given to public systems, as outlined above, prior to herbicide application if located within a PWS source watershed. If located outside a PWS source watershed, consultation will occur if herbicide application is proposed within 1,000 feet of surface waters of known unclassified water sources.

Identify Riparian Areas (BMP 15.5; Chem-3):

Forest Service personnel will identify riparian areas according to methods outlined in the Tongass Riparian Management Area standards and guidelines prior to implementation of herbicide application. Forest Service specialists will work closely with herbicide applicators to ensure project design features are implemented.

Soils/Wetlands

Review treatment plans with the District/SO Soil Scientist.

Determine the suitability of the soil and wetlands for each type of herbicide prior to implementation. Use only aquatic formulations in wetlands.

Where elimination of an invasive plant population presents a soil erosion risk, consider erosion control measures appropriate for the site. Adhere to R10 Soil Quality Standards.

Revegetation will follow current Tongass National Forest standards for seed mix outlined in the Guidance for Invasive Plant Management Program (USDA 2017c).

R10 BMPs: 12.4, 12.5, 12.9, 15.1, 15.2, 15.4, and 15.5

National Core BMPs: AqEco-2, Chem-1, Chem-2, Chem-3, Chem-4, Chem-5, Chem-6, Fac-6, and Veg-8

Botany

Review treatment plans with the District/SO Botanist or Ecologist.

Prior to implementation a qualified Botanist/Ecologist must conduct a site-specific review to determine if the activity location has the potential to support any Region 10 Sensitive Plants or Tongass National Forest Rare Plants. Based on the review, a botanical survey may be required during the appropriate growing season to identify individuals or supporting habitat. If a Region 10 Sensitive or a Tongass National Forest Rare plant population is affected by the activity, consider protections around the population that minimize impacts and meet the habitat needs of the species. If sensitive plants are found, the botanist will evaluate the survey results for consistency with the determination of effects in the EIS for any sensitive taxa found in the project area and document. Mitigation actions may be required to be consistent with the May Affect or No Effect determination for sensitive plants found in a project area (Forest Plan PLA1.II p. 4-39). If rare plants are found, the botanist will complete a resource report to analyze for effects of the activity on rare plants or their habitats. Mitigation actions may be required to protect populations (Forest Plan PLA1.III).

Broadcast spraying will not occur within 100 feet of a known sensitive or rare plant occurrence for Glyphosate and aminopyralid, and 900 feet when using imazapyr.

No herbicides may be used within 60 feet of rare or sensitive plants; however the District Ranger may allow use of herbicides within 60 feet of a sensitive or rare plant occurrence (per Forest Plan direction) if deemed necessary to control an infestation that may pose a threat to that occurrence.

Herbicide treatments will be scheduled as practicable to reduce adverse impacts to nearby sensitive and rare plants. For example, herbicides should be applied to an infestation of a late-growing weed species after sensitive or rare plants in the vicinity have entered dormancy, to minimize potential impacts due to spray drift or run-off.
To reduce potential spray drift or run-off, herbicides will not be applied when average wind speeds exceed 10 miles per hour if no maximum wind speed is stated in the labeling.

Invasive Plants

A qualified Botanist/Ecologist will conduct a site-specific risk assessment to determine the proximity of known infestations, potential vectors, and the habitat vulnerability to invasive species introduction and spread (WBMP 1). Additional site-specific design features may be recommended to reduce the spread and introduction of invasive plants.

A Pesticide Use Proposal must be completed and reviewed by the Regional Pesticide Use Coordinator, and approved by the Regional Forester or delegated official prior to implementation. The District Invasive Plant Program Manager will evaluate invasive plant populations and prepare a treatment plan detailing the locations and types of herbicides to be used. This plan will be available for review by resource specialists to ensure appropriate project design features and BMPs are included. The decision maker must review the treatment plan to ensure the proposed treatments are within the scope of the effects analyzed prior to approving the plan for implementation. Treatment plans will be made available to the public.

See Introduction for additional WBMPs that apply to all activities.

Geology/Karst

Review treatment plans with the District/SO Geologist or Karst Specialist. A karst vulnerability assessment will be completed prior to any surface management practice, including application of herbicide in karst terrain.

All hydrology and fisheries project design features will be applied to high and moderate vulnerability karst systems for both surface and subsurface aquatic systems.

Heritage

All Federal Undertakings, defined in 36 CFR 800.16(y), whether ground disturbing or non-ground disturbing, that have the potential to cause effects to historic properties, require compliance with procedures defined at 36 CFR 800 (see Heritage Intro). The Heritage Professional will be consulted during the planning phases of the project in order to identify the Area of Potential Effects, and to evaluate whether additional information is required for the purposes of determining whether historic properties exist and/or will be adversely affected, and if so, establish the appropriate course of action whether avoidance or mitigation. Section 106 procedures must be concluded prior to project implementation. If unanticipated cultural resources, or the inadvertent discovery of human remains are found during project implementation all work shall stop in the immediate area and steps shall be taken to protect the site from further damage. The Heritage Professional will be contacted immediately and work will not proceed in the area until the Section 106 and/or NAGPRA process is concluded. The Forest Service shall protect known sensitive traditional tribal use areas.

Recreation

Review treatment plans with the District Recreation Specialist.

Activities should consider the Recreation Opportunity Spectrum (ROS) inventory of the activity area and how the actions may impact proposed and established recreation activities on the landscape. Buffers could be provided in areas where resource activities may disrupt the integrity of the recreation experience, or may adversely impact the value of a recreation resource. There is an association between ROS and land use designation (LUD); therefore, reference should be made to the recreation and trails sections of Chapter 3, in addition to the Forest-wide Standards and Guidelines in Chapter 4, and Appendix I of the Forest Plan regarding the Standards and Guidelines for recreation and trails.

Immediately prior to initiating an herbicide application in developed recreation sites and areas of concentrated public use, such as picnic areas located along road systems, or popular berry picking sites, written notice will be posted. The notice will include date and time of application when the area can be re-entered, and the name and phone number of the Forest Service contact. Additional means of notification, such as public service announcements, may also be used at the discretion of the District Ranger.

Within areas of concentrated public use and developed recreation sites, implementation of this project should be limited to weekdays and non-holidays and avoid heavy use periods.

Temporary public use closures are allowed in areas where the public and workers co-mingle and public safety is compromised because of operating equipment, hand tools, and/or the herbicide label requires it. Time treatments to limit temporary closures.

Scenery

SIOs for area must be met (Forest Plan, Chapters 3 and 4). SIOs depend on LUDs and distance from VPRs.

Wilderness

Review treatment plans with the District Wilderness Manager to ensure Wilderness objectives will be met.

A Minimum Requirements Analysis has been completed and approved by the Regional Forester for herbicide treatment activities taking place within designated Wilderness areas. The Minimum Requirements Analysis concludes the activity can only be conducted when the principle objective is to protect or restore the Wilderness resource. The means of treatment used will be a site-specific, professional judgement.

Any use of herbicides within Wilderness areas must be approved by the Regional Forester [FSM 2323.04c (USDA Forest Service 2007)] through a Pesticide Use Proposal.

No motorized equipment or mechanical transport will be used.

Crew size will be kept to 12 people or fewer.

Crew camps, if needed, will be located in previously used campsites if available, and crews will follow Leave-No-Trace guidelines (www.lnt.org).

Wild, Scenic and Recreational Rivers

Maintain or enhance the outstandingly remarkable values (ORVs), free-flowing condition, water quality, and classification of rivers designated or recommended for designation as components of the National Wild and Scenic Rivers System. Apply the High Scenic Integrity Objective (SIO) within wild river corridors and no less than Moderate SIO for any designated or recommended river with a Scenic ORV. Apply all applicable Forest Plan direction pertaining to Wild, Scenic and Recreational Rivers (Forest Plan, p. 3-76 to 3-96).

When would we implement this activity?

Documented populations of district priority Invasive Species are targeted for treatment to reduce their population size and/or limit their spread using an integrated pest management approach. New infestations would be treated in Early Detection and Rapid Response efforts using an integrated pest management approach. Herbicide treatments would be selected when the targeted invasive species is resistant to manual/mechanical methods due to its biology or the infestation site characteristics. Rhizomatous invasive plants such as Canada thistle and Japanese knotweed can reproduce from small root fragments and may be spread by manual treatments. Areas with soil prone to erosion may be selected for herbicide to reduce the disturbance that may occur from removing roots of invasive plants by tool or hand pulling.

Integration Opportunities: Sites are often susceptible to invasive plant infestation following any ground disturbing activity. Post-implementation monitoring after these activities is useful to identify introduced invasive plant populations early and successfully control/eradicate before they become large infestations.

Appendix B. Site Maps

Figure 1. El Capitan proposed invasive treatments map. See plan text for additional details.

Figure 2. Kozciusko Island proposed invasive plant treatment map. See plan text for additional details.

Figure 3. One Duck Area proposed invasive treatment map. See plan text for additional details.

Figure 4. Coffman Cove and Thorne Bay Roads proposed invasive plant treatment map. See plan text for additional details.

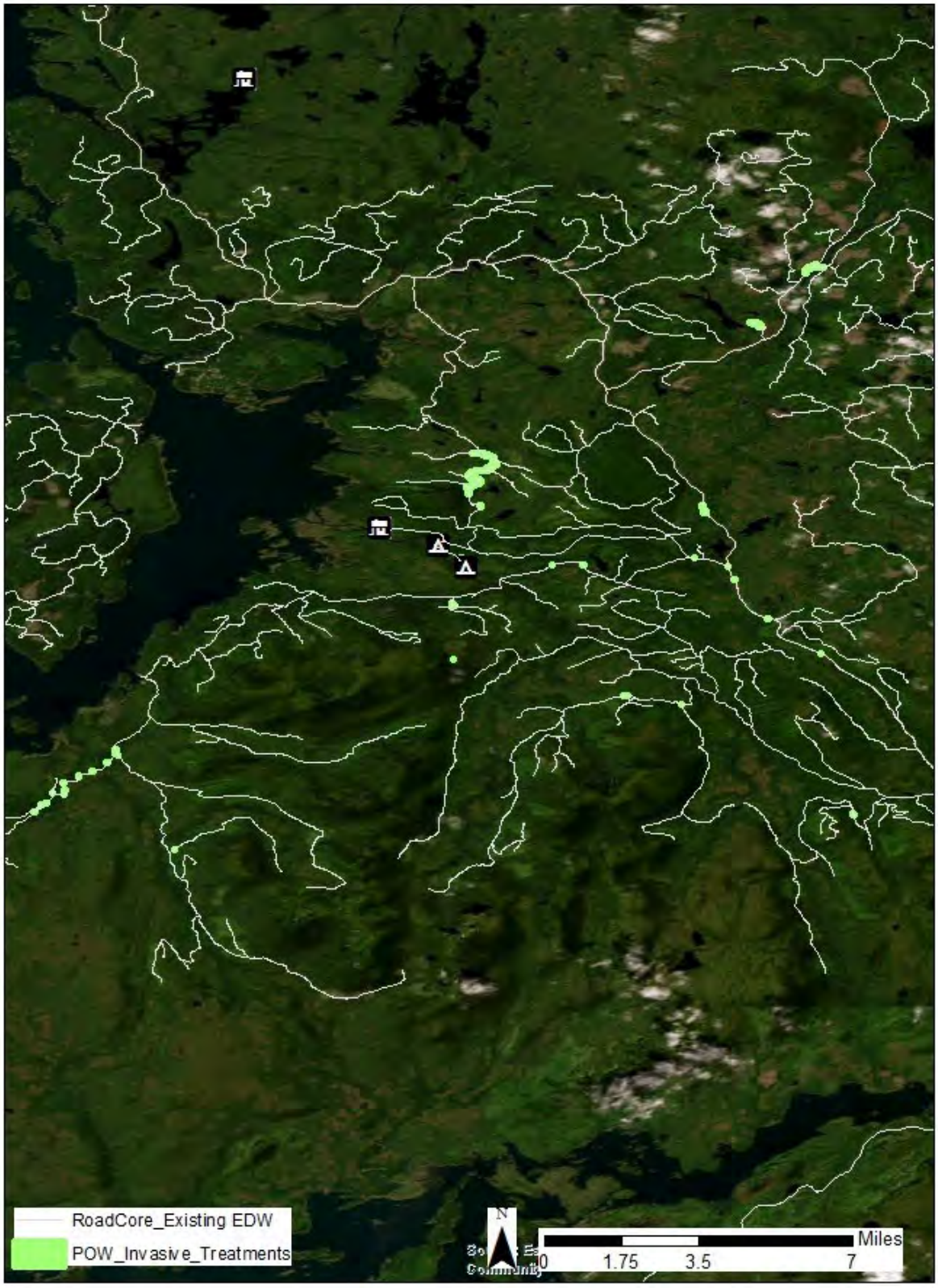

Figure 5. Shaheen Area proposed invasive plant treatment map. See plan text for additional details.

Figure 6. Thorne Bay Ranger Station Compound proposed invasive plant treatment map. See plan text for additional details.

Figure 7. Twelvemile Area proposed invasive plant treatment map. See plan text for additional details.

Appendix C: Monitoring and Evaluation

Monitoring and evaluation of efficacy, as well as adaptive management decisions, will follow the Record of Decision, Final Environmental Impact Statement, and their appendices, as well as the most recently approved Long-term Plan.

At least 50% of the sites treated one year will be monitored for efficacy the next year. Monitoring will be conducted on a prioritized rotational basis by accessible area (i.e., those sites that can be reached in the same area will be monitored together as a group, with rotation between groups).

Monitoring and efficacy will be based on amount of pesticide used each year for a given infestation, per NRM protocol using the Invasive Species Mobile software. Treatment is considered effective when less herbicide is needed for treatment in subsequent years. Monitoring and evaluation results will be made available to the public each year.