

# 2015 SPARTINA TREATMENT PLAN TABLE

Sub-Area Code	Sub-Area Name	2012 BO Group*	New CEQA Impacts Identified	RIRA Habitat <sup>1</sup> (Acres)	2014 <i>Spartina</i> Treatment Cover <sup>2</sup>	RIRA Detected in 2015 (Draft) <sup>3</sup>	Treatment Entry Date <sup>4</sup>	Existing High-tide Refugia & Nesting Habitat	Treatment Methods <sup>5</sup>	2012-2013 BO Assigned Take of RIRA <sup>6,7</sup>	Marsh Enhancements (Potential & Installed) (ISP 2011-2012, 2012-2013, 2013-2014, and 2014-2015) <sup>8,9,10</sup>
01a	AFCC - Mouth	2	None	23.59	10.3 m <sup>2</sup>	1	June 1	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> on levees adjacent to Alameda Creek Regional Trail</li> </ul>	Backpack	0	<ul style="list-style-type: none"> <li>Installed over 6,000 <i>Grindelia stricta</i>, <i>Distichlis spicata</i> and <i>Spartina foliosa</i> in 01a, 01b and 01c between winters 2011-12 and 2014-15</li> </ul>
01b	AFCC – Lower	2	None	135.02	42.1 m <sup>2</sup>	1	Aug. 12	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> on levees adjacent to Alameda Creek Regional Trail</li> </ul>	Backpack	0	<ul style="list-style-type: none"> <li>Installed over 6,000 <i>Grindelia stricta</i>, <i>Distichlis spicata</i> and <i>Spartina foliosa</i> in 01a, 01b and 01c between winters 2011-12 and 2014-15</li> </ul>
01c	AFCC - Upper	2	None	75.30	29.3 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> on levees adjacent to Alameda Creek Regional Trail</li> </ul>	Backpack	0	<ul style="list-style-type: none"> <li>Installed over 6,000 <i>Grindelia stricta</i>, <i>Distichlis spicata</i> and <i>Spartina foliosa</i> in 01a, 01b and 01c between winters 2011-12 and 2014-15</li> </ul>
01d	AFCC - to I-880	3	None	35.79	109.1 m <sup>2</sup>	0	June 1		Backpack	0	None
01e	AFCC - Strip Marsh	3	None	15.37	3.1 m <sup>2</sup>	0	June 1		Backpack	0	None
01f	AFCC - Pond 3	2	None	130.93	2.4 m <sup>2</sup>	3	Aug. 12	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> on berms adjacent to Alameda Creek Regional Trail and the north side of the site</li> </ul>	Backpack	0	<ul style="list-style-type: none"> <li>Installed nearly 1,000 <i>Grindelia stricta</i> and <i>Spartina foliosa</i> along channels between winters 2011-12 and 2014-15</li> </ul>
02a.1a	Belmont Slough	1	None	53.99	0.34 ac	2	Aug. 12	<ul style="list-style-type: none"> <li>High-quality refugia along established berms vegetated extensively with dense, mature <i>Grindelia</i></li> </ul>	Airboat, Truck	0	<ul style="list-style-type: none"> <li>Installed one artificial floating island in 2012 and removed in fall 2013 (USGS)</li> <li>Constructed one pilot high tide refuge island planted with <i>Grindelia stricta</i> in winter 2012-13</li> <li>Cut off two berms from shore to reduce mammalian predator access and create islands by making multiple cuts in berms</li> <li>Remove four raptor perches (posts and trees) adjacent to slough</li> </ul>
02a.1b	Belmont Slough South	1	None	14.25	0.33 ac	3	Aug. 12	<ul style="list-style-type: none"> <li>Vegetation, including mature <i>Grindelia</i>, on Belmont Slough levee</li> </ul>	Airboat, Truck	0	<ul style="list-style-type: none"> <li>Installed one artificial floating island in 2012 and removed in fall 2013 (USGS)</li> <li>Constructed one high tide refuge island planted with <i>Grindelia stricta</i> in winter 2012-13</li> </ul>
02a.2	Belmont SI to Steinberger SI	2	None	136.46	1.53 ac	2	Aug. 12	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> on adjacent levees and along tidal channels</li> <li>Extensive <i>Spartina foliosa</i></li> </ul>	Airboat	0	None

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02a.3	Bird Island	1	None	91.35	0.18 ac	0	Aug. 12	<ul style="list-style-type: none"> <li>▪ <i>Grindelia</i> on berm on west side of Bird Island</li> <li>▪ Vegetation around dredge lock immediately adjacent on mainland (this is where rails are often seen during king tides)</li> </ul>	Airboat	0	<ul style="list-style-type: none"> <li>▪ Installed one artificial floating island in 2012 and removed in fall 2013 (USGS)</li> <li>▪ Remove raptor perches (many poles)</li> <li>▪ Constructed one high tide refuge island planted with <i>Grindelia stricta</i> in winter 2012-13</li> <li>▪ Installed 1,300 <i>Grindelia stricta</i> along channel edges between winters 2013-14 and 2014-15</li> </ul>
02a.4	Redwood Shores Mitigation Bank	New 2012	None	88.86	32.4 m <sup>2</sup>	0	June 1	n/a	Backpack	n/a	None
02b.1	Corkscrew Slough	2	None	135.83	0.89 ac	14	Aug. 12	<ul style="list-style-type: none"> <li>▪ Mature <i>Grindelia</i> on adjacent levees and along tidal channels</li> <li>▪ Extensive <i>Spartina foliosa</i></li> <li>▪ Extensive tidal channel network with substantial foraging habitat</li> </ul>	Airboat	0	<ul style="list-style-type: none"> <li>▪ Four high tide refuge islands planted with <i>Grindelia stricta</i> were constructed in winter 2014-15</li> <li>▪ Installed over 1,100 <i>Grindelia stricta</i> along channel edges and on islands in winter 2014-15</li> </ul>
02b.2	Steinberger Sl to Redwood Crk	2	None	271.19	0.96 ac	0	June 1	<ul style="list-style-type: none"> <li>▪ Mature <i>Grindelia</i> on adjacent levees and along tidal channels</li> <li>▪ Extensive <i>Spartina foliosa</i></li> </ul>	Airboat	0	<ul style="list-style-type: none"> <li>▪ Constructed four high tide refuge islands planted with <i>Grindelia stricta</i> in winter 2014-15</li> <li>▪ Installed over 1,100 <i>Grindelia stricta</i> along channel edges and on islands in winter 2014-15</li> </ul>
02c.1a	B2 North Quadrant West	1	None	147.57	1.72 ac	4	Aug. 12	<ul style="list-style-type: none"> <li>▪ Mature <i>Grindelia</i> on adjacent berms</li> <li>▪ <i>Grindelia</i> and upland transition plantings (1150 plants); planted in 2012, will provide cover by winter 2013/2014</li> </ul>	Airboat	2	<ul style="list-style-type: none"> <li>▪ Installed one artificial floating island in 2012 and removed in fall 2013 (USGS)</li> <li>▪ Constructed two high tide refuge islands planted with <i>Grindelia stricta</i>, one in winter 2012-13 and one in winter 2013-14</li> <li>▪ 6,700 <i>Grindelia stricta</i> and upland transition zone plants installed on channel edges and levee/berms between winters 2011-12 and 2014-15</li> </ul>
02c.1b	B2 North Quadrant East	1	None	136.04	11.53 ac	18	Aug. 12	<ul style="list-style-type: none"> <li>▪ Mature <i>Grindelia</i> on adjacent berms</li> </ul>	Helicopter (seed suppression only)	4	<ul style="list-style-type: none"> <li>▪ Installed three artificial floating islands in 2012 and removed in fall 2013 (USGS)</li> <li>▪ Constructed three high tide refuge island planted with <i>Grindelia</i>, one in winter 2011-12 and two in winter 2012-13</li> <li>▪ Installed over 100 <i>Grindelia stricta</i> on channel edges and berms in winter 2013-14</li> </ul>
02c.2	B2 North Quadrant	2	None	208.62	6.27 ac	2	Aug. 12	<ul style="list-style-type: none"> <li>▪ Mature <i>Grindelia</i> on adjacent berms</li> <li>▪ Extensive <i>Spartina foliosa</i></li> <li>▪ PG&amp;E boardwalk</li> </ul>	Airboat	0	<ul style="list-style-type: none"> <li>▪ Installed over 3,800 <i>Grindelia stricta</i> on channels edges and berms in between winters 2013-14 and 2014-15</li> </ul>
02d.1a	B2 South Quadrant West	1	None	38.28	0.59 ac	4	Aug. 12	<ul style="list-style-type: none"> <li>▪ Some mature <i>Grindelia</i>, weedy vegetation along upland edge in NE corner and adjacent berms</li> </ul>	Airboat	4	<ul style="list-style-type: none"> <li>▪ Remove red fox via trapping by USDA</li> </ul>
02d.1b	B2 South Quadrant East	1	None	23.19	0.03 ac	0	June 1	<ul style="list-style-type: none"> <li>▪ Some mature <i>Grindelia</i>, weedy vegetation along upland edge in eastern corner and adjacent berms</li> </ul>	Airboat	0	<ul style="list-style-type: none"> <li>▪ Remove red fox via trapping by USDA</li> </ul>

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02d.2	B2 South Quadrant (2)	2	None	58.75	0.22 ac	3	Aug. 12	<ul style="list-style-type: none"> <li>Some mature <i>Grindelia</i>, weedy vegetation along upland edge and adjacent berms</li> </ul>	Backpack	0	<ul style="list-style-type: none"> <li>Over 2,000 <i>Grindelia stricta</i> installed on channel edges and levee/berms between winters 2013-14 and 2014-15</li> </ul>
02d.3	B2 South Quadrant (3)	3	None	67.86	47.9 m <sup>2</sup>	0	June 1		Backpack	0	<ul style="list-style-type: none"> <li>Removal of raptor perches</li> </ul>
02e	West Point Slough NW	1	None	4.92	162.7 m <sup>2</sup>	0	June 1		Airboat	0	None
02f	Greco Island - North	2	None	498.50	1.47 ac	8	Aug. 12	<ul style="list-style-type: none"> <li>Extensive, mature <i>Grindelia</i> throughout the site</li> <li>Extensive <i>Spartina foliosa</i></li> <li>Extensive tidal channel network with substantial foraging habitat</li> <li>PG&amp;E boardwalk</li> </ul>	Airboat	0	<ul style="list-style-type: none"> <li>Installed over 10,000 <i>Grindelia stricta</i> along channel and berm/island edges between winters 2011-12 and 2014-15</li> </ul>
02g	West Point Slough - SW/E	2	None	40.90	0.17 ac	0	Aug. 12		Backpack	0	None
02h	Greco Island - South	2	None	233.02	0.72 ac	31	Aug. 12	<ul style="list-style-type: none"> <li>Extensive, mature <i>Grindelia</i> throughout the site</li> <li>Extensive <i>Spartina foliosa</i></li> <li>Extensive tidal channel network with substantial foraging habitat</li> </ul>	Airboat	0	<ul style="list-style-type: none"> <li>Installed 800 <i>Grindelia stricta</i> along channel and berm/island edges during winter 2014-15</li> </ul>
02i	Ravenswood Slough & Mouth	1	None	117.65	0.61 ac	12	Aug. 12	<ul style="list-style-type: none"> <li>Extensive, mature <i>Grindelia</i> along toe of levee and present along small channels in numerous areas along slough</li> </ul>	Airboat; Truck	0	<ul style="list-style-type: none"> <li>Install raptor deterrents on poles</li> </ul>
02j	Ravenswood Open Space Preserve	3	None	23.63	259.9 m <sup>2</sup>	0	June 1		Airboat	0	None
02k	Deepwater Slough	2	None	421.75	0.67 ac	37	Aug. 12	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> on adjacent berms</li> <li>Extensive <i>Spartina foliosa</i></li> <li>Upland areas on eastern portion of the site</li> <li>PG&amp;E boardwalk</li> </ul>	Airboat	0	<ul style="list-style-type: none"> <li>Four high tide refuge islands planted with <i>Grindelia stricta</i> were constructed in winter 2014-15</li> <li>Installed over 1,100 <i>Grindelia stricta</i> along channel edges and on islands in winter 2014-15</li> </ul>
02l	Inner Bair Island Restoration	3	None	59.64	61.8 m <sup>2</sup>	0	June 1		Backpack	0	None
02m	Pond B3 Bair Island Restoration	3	None	411.84	2.69 ac	0	June 1		Airboat	0	None
02n	SF2	New 2012	None	242.61	16.1 m <sup>2</sup>	0	June 1	n/a	Backpack	n/a	None
02o	Central Bair Restoration	New 2015	None	654	0.09 m <sup>2</sup>	0	June 1	n/a	Airboat	n/a	None

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03a	Blackie's Creek	3	None	0.55	0.8 m <sup>2</sup>	0	June 1		Digging	0	None
03b	Blackie's Creek Mouth	3	None	0.98	13.8 m <sup>2</sup>	0	June 1		Backpack, Digging	0	None
04a	CMC Marsh Reserve	2	None	77.12	17.7 m <sup>2</sup>	19	Sep. 1	<ul style="list-style-type: none"> <li>An island and berms with mature <i>Grindelia</i> and other native marsh vegetation</li> <li>PG&amp;E boardwalk</li> </ul>	Backpack, Digging	0	None
04b	College of Marin	3	None	4.43	1.0 m <sup>2</sup>	0	June 1		Digging	0	None
04c	Piper Park - East	2	None	10.11	3.7 m <sup>2</sup>	4	Sep. 1	<ul style="list-style-type: none"> <li>Patches of mature <i>Grindelia</i> along tidal channels and marsh/upland transition zone</li> </ul>	Digging	0	None
04d	Piper Park - West	2	None	13.83	1.7 m <sup>2</sup>	4	Sep. 1	<ul style="list-style-type: none"> <li>Patches of mature <i>Grindelia</i> along tidal channels and interior of marsh</li> </ul>	Digging	0	None
04e	Larkspur Ferry Landing Area	3	None	1.03	23.1 m <sup>2</sup>	0	June 1		Backpack, Digging	0	None
04f	Riviera Circle	3	None	3.85	53.3 m <sup>2</sup>	0	June 1		Backpack, Digging	0	None
04g	Creekside Park	2	None	20.75	135.1 m <sup>2</sup>	4	June 1 to treat <i>densiflora</i>	<ul style="list-style-type: none"> <li><i>Grindelia</i> plantings (600 plants) planted in 2011/2012, will provide cover by 2013/2014</li> <li>Extensive <i>Spartina foliosa</i> along channels</li> <li>A large island with weedy vegetation</li> <li>Water control structure prevents extreme high tides</li> </ul>	Backpack, Digging	0	<ul style="list-style-type: none"> <li>Extensive <i>Grindelia stricta</i> planted by Friends of Corte Madera Creek between winters 2011-12 and 2013-14.</li> </ul>
04h	CMC - Upper	2	None	13.67	117.3 m <sup>2</sup>	2	Sep. 1	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> on adjacent berms</li> </ul>	Backpack, Digging	0	None
04i	CMC - Lower	3	None	15.91	124.9 m <sup>2</sup>	0	June 1		Backpack, Digging	0	None
04j.1	CMC-Mouth North Bank	1	None	5.96	145.0 m <sup>2</sup>	1	June 1 to treat <i>densiflora</i>  Aug. 12 to treat <i>alterniflora</i>	<ul style="list-style-type: none"> <li>An island and several berms with mature <i>Grindelia</i>, <i>Frankenia</i>, and other native marsh vegetation</li> </ul>	Backpack, Digging	4	<ul style="list-style-type: none"> <li>Installed two artificial floating islands in 2012 and removed in fall 2013 (USGS)</li> </ul>

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04j.2	CMC - Mouth South Bank	2	None	12.20	11.8 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> along channels</li> <li>Boardwalks</li> <li>Extensive <i>Spartina foliosa</i> along channels</li> </ul>	Backpack, Digging	0	None
04k	Boardwalk No. 1	2	None	8.44	3.6 m <sup>2</sup>	1	Sep. 1	<ul style="list-style-type: none"> <li>Patches <i>Grindelia</i> along the channel</li> <li>Boardwalks</li> </ul>	Digging	0	None
04l	Murphy Creek	3	None	4.53	0	0	June 1		n/a (zero detection)	0	None
05a.1	Mowry Marsh & Slough	2	None	821.08	0.40 ac	7	July 20 for fringe marsh; Aug. 12	<ul style="list-style-type: none"> <li>Extensive mature <i>Grindelia</i> along channels and levees throughout the site</li> <li>Extensive <i>Spartina foliosa</i> along channels and in marsh plain</li> </ul>	Airboat	0	None
05a.2	Calaveras Marsh	1	None	451.91	3.35 ac	13	July 20 for fringe marsh; Aug. 12	<ul style="list-style-type: none"> <li>Extensive <i>Grindelia</i> on toe of levees; many acres of thick bulrush stands throughout center of marsh <i>Grindelia</i> and bulrush along channels</li> <li>PG&amp;E boardwalk</li> </ul>	Airboat, Marsh Master	6	<ul style="list-style-type: none"> <li>Installed three artificial floating islands in 2012 and removed in fall 2013 (USGS)</li> </ul>
05b	Dumbarton/ Audubon	2	None	747.88	0.73 ac	22	July 20 for fringe marsh; Aug. 12	<ul style="list-style-type: none"> <li>Extensive <i>Grindelia</i> throughout marsh and vegetation at upland edge of old railroad tracks</li> <li>Extensive <i>Spartina foliosa</i> along channels and in marsh plain</li> <li>PG&amp;E boardwalk</li> </ul>	Airboat	0	None
05c.1	Newark Slough West	2	None	140.07	51.2 m <sup>2</sup>	1	June 1	<ul style="list-style-type: none"> <li>Extensive <i>Grindelia</i> along channel edges and on adjacent berms</li> <li>Extensive <i>Spartina foliosa</i> throughout the site</li> </ul>	Airboat	0	None
05c.2	Newark Slough East	2	None	92.14	269.6 m <sup>2</sup>	3	Aug. 12	<ul style="list-style-type: none"> <li>Extensive <i>Grindelia</i> along channel edges and on adjacent berms</li> <li>Extensive <i>Spartina foliosa</i> throughout the site</li> </ul>	Airboat	0	None
05d	LaRiviere Marsh	2	None	94.69	205.3 m <sup>2</sup>	9	Aug. 12	<ul style="list-style-type: none"> <li>Extensive <i>Grindelia</i>, <i>Spartina foliosa</i>, and <i>Bolboschoenus maritimus</i> throughout the site</li> <li>Vegetated berms throughout the marsh</li> </ul>	Backpack	0	None
05e	Mayhew's Landing	3	None	27.94	0.12 ac	0	June 1		Backpack	0	None
05f	Coyote Creek	2	None	703.54	0	0	June 1	<ul style="list-style-type: none"> <li>Extensive <i>Grindelia</i>, <i>Bolboschoenus maritimus</i>, and extensive <i>Spartina foliosa</i> throughout the site</li> <li>Numerous vegetated levees bordering the site</li> </ul>	n/a (zero detection)	0	None

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05g	Cargill Pond (W Suites Hotel)	3	None	18.19	152.0 m <sup>2</sup>	0	June 1		Backpack	0	None
05h	Plummer Creek Mitigation	2	None	16.63	103.0 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>▪ Extensive <i>Grindelia</i> throughout the tidal channel and along adjacent levees</li> <li>▪ Extensive <i>Bolboschoenus maritimus</i> and <i>Spartina foliosa</i> throughout the site</li> </ul>	Backpack	0	None
05i	Island Ponds (A21-A19)	New 2012	None	510.35	2.1 m <sup>2</sup>	0	June 1	n/a	Airboat	n/a	None
06a	Emeryville Crescent - East	2	None	54.20	0.16 ac	0	June 1	<ul style="list-style-type: none"> <li>▪ Patches of mature <i>Grindelia</i> along tidal channels and interior of marsh</li> <li>▪ Extensive <i>Spartina foliosa</i> throughout the site</li> <li>▪ Numerous vegetated upland areas in and surrounding the site</li> </ul>	Backpack	0	None
06b	Emeryville Crescent - West	2	None	31.51	253.4 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>▪ Numerous vegetated upland areas surround the site</li> </ul>	Backpack	0	None
07a	Oro Loma - East	2	None	197.05	67.7 m <sup>2</sup>	1	Sep.1	<ul style="list-style-type: none"> <li>▪ Berms vegetated with <i>Grindelia</i> on the interior of the site</li> </ul>	Airboat	0	<ul style="list-style-type: none"> <li>▪ Installed 5,000 <i>Grindelia stricta</i> and <i>Distichlis spicata</i> along channel and island edges between winters 2011-12 and 2014-15</li> </ul>
07b	Oro Loma – West	2	None	130.73	0.09 ac	1	Sep. 1	<ul style="list-style-type: none"> <li>▪ Berms vegetated with <i>Grindelia</i> on the interior of the site</li> </ul>	Airboat	0	<ul style="list-style-type: none"> <li>▪ Installed over 2,700 <i>Grindelia stricta</i> and <i>Distichlis spicata</i> on berm/island edges between winters 2011-12 and 2013-14</li> </ul>
08	Palo Alto Baylands	2	None	217.78	1.07 ac	39	July 20 for fringe marsh; Aug. 12	<ul style="list-style-type: none"> <li>▪ Extensive <i>Grindelia</i> throughout the site and on adjacent levees</li> <li>▪ Extensive <i>Spartina foliosa</i> and <i>Bolboschoenus maritimus</i> throughout the site</li> <li>▪ PG&amp;E boardwalk</li> </ul>	Backpack	1-2	<ul style="list-style-type: none"> <li>▪ Installed one artificial floating island in 2012 and removed in fall 2013 (USGS)</li> <li>▪ Eight high tide refuge islands planted with <i>Grindelia stricta</i> were constructed in winter 2014-15</li> </ul>
09	Tiscornia Park	2	None	15	4.5 m <sup>2</sup>	0	Sep. 1	<ul style="list-style-type: none"> <li>▪ Patches of <i>Grindelia</i> along channels</li> <li>▪ Extensive <i>Spartina foliosa</i> throughout the channels and fringe of this site</li> <li>▪ Boardwalks</li> </ul>	n/a (zero detection)	0	None
10a	Whittel Marsh	2	None	74.0	5.5 m <sup>2</sup>	3	Sep. 1	<ul style="list-style-type: none"> <li>▪ Patches of <i>Grindelia</i> along channels</li> </ul>	Digging	0	None
10b	Southern Marsh	3	None	7.63	10.5 m <sup>2</sup>	0	June 1		Backpack, Digging	0	None
10c	Giant Marsh	2	None	29.03	47.3 m <sup>2</sup>	0	Sep. 1	<ul style="list-style-type: none"> <li>▪ Patches of <i>Grindelia</i> along channels</li> </ul>	Backpack, Digging	0	None

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11	Southampton Marsh	2	None	163.12	138.4 m <sup>2</sup>	TBD	Apr/May for <i>S. patens</i> Sep. 1 for hybrid	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> along channels</li> <li>Extensive <i>Bolboschoenus maritimus</i> and <i>Spartina foliosa</i> throughout the site</li> <li>Extensive transition zone vegetation in the northeast corner of the site</li> </ul>	Backpack	0	None
12a	Pier 94	3	None	4.16	0.3 m <sup>2</sup>	0	June 1		Backpack	0	None
12b	Pier 98/Heron's Head	2	None	10.91	10.2 m <sup>2</sup>	0	Sep.1	<ul style="list-style-type: none"> <li>Island with sparse vegetation</li> <li>Sparse vegetation along trail</li> </ul>	Backpack	0	None
12c	India Basin	3	None	2.10	0	0	June 1		n/a (zero detection)	0	None
12d	Hunters Point Naval Reserve	3	None	1.25	0	0	June 1		n/a (zero detection)	0	None
12e	Yosemite Channel	3	None	3.31	9.5 m <sup>2</sup>	0	June 1		Backpack	0	None
12f	Candlestick Cove	2	None	1.85	0.008 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>Ruderal and upland vegetation on outer berm</li> </ul>	Backpack	0	None
12g	Crissy Field	3	None	14.24	0	0	June 1		n/a (zero detection)	0	None
12h	Yerba Buena Island	3	None	11.05	0	0	June 1		n/a (zero detection)	0	None
12i	Mission Creek	3	None	2.93	0	0	June 1		n/a (zero detection)	0	None
13a	OAC - North Bank	2	None	27.52	0.5 m <sup>2</sup>	0	Sep. 1	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> and other vegetation on adjacent levees</li> <li>ISP <i>Grindelia</i> and <i>Spartina foliosa</i> plantings planted at adjacent 13b will provide cover by 2013/2014</li> </ul>	Backpack	0	None
13b	OAC - Island	2	None	93.74	26.1 m <sup>2</sup>	2	Sep. 1	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> and other vegetation on adjacent levees (along 13a and 13c)</li> <li>ISP <i>Grindelia</i> plantings (700 plants), <i>Spartina foliosa</i> plantings (400 plants) planted in 2011/2012 at 13b will provide cover by 2013/2014</li> </ul>	Backpack	0	<ul style="list-style-type: none"> <li>Over 1,100 <i>Grindelia stricta</i> and <i>Spartina foliosa</i> planted along channels and the edge of berms/islands during winter of 2011-12</li> </ul>
13c	OAC - South Bank	2	None	24.09	0.007 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> and other vegetation on adjacent levees</li> <li><i>Grindelia</i> and <i>Spartina foliosa</i> plantings planted at adjacent 13b will provide cover by 2013/2014</li> </ul>	Backpack	0	None

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13d	Whale's Tail - North	2	None	149.34	17.6 m <sup>2</sup>	2	Sep.1	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> along channels and levees</li> </ul>	Backpack	0	<ul style="list-style-type: none"> <li>Installed over 5,800 <i>Grindelia stricta</i> and <i>Spartina foliosa</i> on marsh between winters 2011-12 and 2014-15</li> </ul>
13e	Whale's Tail - South	2	None	149.35	3.6 m <sup>2</sup>	7	Aug. 12	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> along channels and levees</li> </ul>	Backpack	0	<ul style="list-style-type: none"> <li>Installed over 15,900 <i>Grindelia stricta</i>, <i>Distichlis spicata</i>, <i>Spartina foliosa</i> and upland transition zone plants between winters 2011-12 and 2014-15</li> </ul>
13f	Cargill Mitigation Marsh	3	None	47.18	3.9 m <sup>2</sup>	3	June 1		Backpack	0	<ul style="list-style-type: none"> <li>Installed over 4,200 <i>Grindelia stricta</i> and <i>Spartina foliosa</i> between winters 2012-13 and 2014-15</li> </ul>
13g	OAC - Upstream 20 Tide Gates	3	None	22.17	0	0	June 1		n/a (zero detection)	0	None
13h	Eden Landing - North Creek	3	None	35.86	1.0 m <sup>2</sup>	0	June 1		Backpack	0	<ul style="list-style-type: none"> <li>Installed over 200 <i>Spartina foliosa</i> during winter 2014-15</li> </ul>
13i	Eden Landing - Pond 10	3	None	216.12	0.3 m <sup>2</sup>	0	June 1		Backpack	0	None
13j	Eden Landing - Mt Eden Creek	2	None	124.83	11.9 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> along channels and levees</li> </ul>	Backpack	0	<ul style="list-style-type: none"> <li>Installed over 6,900 <i>Grindelia stricta</i>, <i>Distichlis spicata</i> and <i>Spartina foliosa</i> between winters 2011-12 and 2014-15</li> </ul>
13k	Eden Reserve South (North Cr Marsh)	3	None	239.40	29.4 m <sup>2</sup>	0	June 1		Backpack	0	<ul style="list-style-type: none"> <li>Installed over 11,800 <i>Grindelia stricta</i>, <i>Distichlis spicata</i>, <i>Spartina foliosa</i> and upland transition zone plants between winters 2011-12 and 2014-15</li> </ul>
13l	Eden Reserve North (Eden Cr Marsh)	3	None	229.78	16.6 m <sup>2</sup>	0	June 1		Backpack	0	<ul style="list-style-type: none"> <li>Installed over 2,100 <i>Spartina foliosa</i> between winters 2013-14 and 2014-15</li> </ul>
13m	Eden Landing - Pond E8A, E9, and E8X	New 2014	None	665	113.0 m <sup>2</sup>	0	June 1	n/a	Airboat	n/a	<ul style="list-style-type: none"> <li>Installed over 1,300 <i>Spartina foliosa</i> in winter 2014-15</li> </ul>
15a.1	Charleston Slough to Mt. View Sl	2	None	97.27	0.10 ac	5	Aug. 12	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> along levees</li> <li>Extensive robust <i>Spartina foliosa</i> throughout the site</li> <li>PG&amp;E boardwalk</li> </ul>	Truck, Backpack	0	None
15a.2	Stevens Ck. to Guadalupe Sl*	3	None	59.52	0.05 ac	0	June 1		Truck, Backpack	0	None
15a.3	Guadalupe Slough	2	None	316.20	0.26 ac	4	Aug. 12	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> along levees</li> <li>Extensive <i>Bolboschoenus maritimus</i> and robust <i>Spartina foliosa</i> throughout the site</li> </ul>	Truck, Backpack	0	None
15a.4	Alviso Slough	1	None	412.80	2.22 ac	9	<b>July 20 for fringe marsh;</b> Aug. 12	<ul style="list-style-type: none"> <li>Extensive <i>Grindelia</i> mixed with tall bulrush on west side of slough, at toe of levees, and along channel, with extensive bulrush and <i>Lepidium</i> just upstream from 2011 rail locations</li> <li>PG&amp;E boardwalk</li> </ul>	Airboat	2	<ul style="list-style-type: none"> <li>Installed one artificial floating island in 2012 and removed in fall 2013 (USGS)</li> </ul>

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15a.5	Coyote Ck to Artesian Slough	2	None	442.42	0.11 ac	18	Aug. 12	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> along levees</li> <li>Extensive <i>Bolboschoenus maritimus</i> and <i>Spartina foliosa</i> throughout site</li> </ul>	Airboat	0	None
15a.6	Knapp Tract (Pond A6)	New 2013	None	382.88	87 m <sup>2</sup>	0	June 1	n/a	Airboat	n/a	None
15b	Faber/ Laumeister Marsh	2	None	197.34	0.17 ac	89	Aug. 12	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> and extensive <i>Spartina foliosa</i> throughout the entire marsh and along levees</li> <li>PG&amp;E boardwalk</li> </ul>	Backpack	0	None
15c	Shoreline Regional Park	3	None	47.27	0.18 ac	0	June 1		Backpack	0	None
16.1	Cooley Landing Central	1	None	41.95	1.61 ac	2	Aug. 12	<ul style="list-style-type: none"> <li>Some <i>Grindelia</i> in southwest corner, more extensive <i>Grindelia</i> in marsh immediately to west</li> <li>Extensive <i>Grindelia</i> in adjacent Laumeister Tract</li> <li>PG&amp;E boardwalk</li> </ul>	Truck, Airboat	2	<ul style="list-style-type: none"> <li>Installed one artificial floating island in 2012 and removed in fall 2013 (USGS)</li> <li>Constructed two high tide refuge island planted with <i>Grindelia stricta</i> winter 2013-14</li> <li>Plant <i>Grindelia stricta</i> on "island" of cut-off outer levee (to the east of the sub-area boundary)</li> </ul>
16.2	Cooley Landing East	2	None	135.85	7.21 ac	2	June 1	<ul style="list-style-type: none"> <li>Some <i>Grindelia</i> in southwest corner, more extensive <i>Grindelia</i> in marsh immediately to west</li> <li>Extensive <i>Grindelia</i> in adjacent Laumeister Tract</li> <li>PG&amp;E boardwalk</li> </ul>	Truck, Airboat	0	<ul style="list-style-type: none"> <li>Plant <i>Grindelia stricta</i> on "island" of cut-off outer levee</li> </ul>
17a	Elsie Roemer	3	None	17.94	0.19 ac	0	June 1		Backpack	0	<ul style="list-style-type: none"> <li>Installed over 1,600 <i>Spartina foliosa</i> between winters 2011-12 and 2014-15 (ISP and research partner Romberg-Tiburon Center)</li> </ul>
17b	Bay Farm Island	3	None	7.59	32.1 m <sup>2</sup>	0	June 1		Backpack	0	None
17c.1	Arrowhead Marsh West	1	None	20.17	1.39 ac	6	Sep. 1	<ul style="list-style-type: none"> <li><i>Grindelia</i> and <i>Triglochin</i> plantings (1800 plants in 2011)</li> <li>USGS artificial islands (35) between 17c.1 and 17c.2</li> </ul>	Airboat	0	<ul style="list-style-type: none"> <li>Constructed two high tide refuge islands planted with <i>Grindelia stricta</i> in winter 2013-14</li> <li>Installed over 2,500 <i>Grindelia stricta</i> plants along channel edges between winters 2011-12 and 2013-14</li> </ul>
17c.2	Arrowhead Marsh East (including eastern island)	4	None	23.74	15.67 ac	44	n/a		No Treatment 2015	n/a	<ul style="list-style-type: none"> <li>USGS installed 30 artificial floating islands between 17c.1 and 17c.2 in winters 2011-12 and 2012-13</li> </ul>
17d.1	MLK Regional Shoreline-Fan Marsh Shore	1	None	2.91	0.14 ac	0	June 1	<ul style="list-style-type: none"> <li><i>Grindelia</i> and weedy vegetation along shore</li> </ul>	Airboat	0	None
17d.2	Airport Channel - MLK Shoreline	3	None	4.60	0.08 ac	0	June 1		Backpack	0	None
17d.3	East Creek - MLK Shoreline	3	None	11.34	0.04 ac	0	June 1		Airboat	0	None

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17d.4	MLK Regional Shoreline-Damon Marsh	4	None	10.60	4.64 ac	2	n/a		No Treatment 2015	n/a	<ul style="list-style-type: none"> <li>▪ <i>Grindelia</i>, <i>Baccharis</i>, and other upland transition zone species installed along edge of marsh (Save the Bay) in 2011 and 2012</li> <li>▪ Installed 470 <i>Grindelia stricta</i> along channel edges in winter 2012-13</li> </ul>
17d.5	Damon Slough/Elmhurst Cr - MLK Shoreline	3	None	6.38	83.0 m <sup>2</sup>	0	June 1		Backpack	0	None
17e.1	San Leandro Creek North	1	None	2.04	17.8 m <sup>2</sup>	2	June 1	<ul style="list-style-type: none"> <li>▪ Extensive <i>Grindelia</i> and other vegetation along channel</li> </ul>	Backpack	0	None
17e.2	San Leandro Creek South	3	None	5.34	243.7 m <sup>2</sup>	0	June 1		Backpack	0	None
17f	Oakland Inner Harbor	3	None	180	51.2 m <sup>2</sup>	0	June 1		Backpack	0	None
17g	Coast Guard Island	3	None	3.11	0.5 m <sup>2</sup>	0	June 1		Backpack	0	None
17h	MLK New Marsh	4	None	34.32	18.27 ac	30	n/a		No Treatment 2015	n/a	<ul style="list-style-type: none"> <li>▪ <i>Grindelia stricta</i>, <i>Baccharis</i> and other upland transition zone species installed along edge of marsh (Save the Bay) in winter 2011 and 2012</li> <li>▪ Installed 200 <i>Grindelia stricta</i> along edge of eastern island in winter 2012-13</li> <li>▪ Installed three artificial floating islands (USGS) and one pilot high tide refuge island planted with <i>Grindelia stricta</i> in winter 2012-14</li> <li>▪ Installed two high tide refuge islands in winter 2013-14</li> </ul>
17i	Coliseum Channels	3	None	13.41	0.10 ac	0	June 1		Backpack	0	None
17j	Fan Marsh	4	None	13.23	5.53 ac	9	n/a		No Treatment 2015	n/a	None
17k	Airport Channel	3	None	4.06	15.9 m <sup>2</sup>	0	June 1		Backpack	0	None
17l	Doolittle Pond	3	None	3.30	58.8 m <sup>2</sup>	0	June 1		Backpack	0	None
17m	Alameda Island – East	3	None	5.67	163.2 m <sup>2</sup>	0	June 1		Backpack	0	None
18a	Colma Creek	3	None	6.93	0.2 m <sup>2</sup>	0	June 1		Backpack	0	<ul style="list-style-type: none"> <li>▪ Installed 218 <i>Spartina foliosa</i> in winter 2011-12 (all planting by research partner Romberg-Tiburon Center)</li> </ul>

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18b	Navigable Slough	2	None	3.09	0.8 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> along channels and levees</li> <li><i>Grindelia</i> and ISP <i>Spartina foliosa</i> plantings in adjacent sites, including San Bruno Marsh (18a) and Colma Creek (18g)</li> </ul>	Backpack	0	None
18c	Old Shipyard	3	None	4.71	0	0	June 1		n/a (zero detection)	0	None
18d	Inner Harbor	3	None	8.05	0	0	June 1		n/a (zero detection)	0	None
18e	Sam Trans Peninsula	3	None	14.28	6.4 m <sup>2</sup>	0	June 1		Airboat	0	None
18f	Confluence Marsh	1	None	7.21	0.007 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li><i>Grindelia</i> and <i>Baccharis</i> along the toe of the levee and across creek to north where existing berms are proposed for enhancement</li> </ul>	Airboat	0	None
18g	San Bruno Marsh	3	None	28.49	8.9 m <sup>2</sup>	0	June 1		Airboat	0	<ul style="list-style-type: none"> <li>Installed 100 <i>Grindelia stricta</i> in winter 2012-13 (all planting by research partner Romberg-Tiburon Center)</li> </ul>
18h	San Bruno Creek	3	None	5.08	117.1 m <sup>2</sup>	0	June 1		Backpack, Mowing	0	None
19a	Brisbane Lagoon	3	None	10.36	0.4 m <sup>2</sup>	0	June 1		Backpack	0	None
19b	Sierra Point	3	None	2.41	1.9 m <sup>2</sup>	0	June 1		Backpack	0	None
19c	Oyster Cove	3	None	3.06	0.2 m <sup>2</sup>	0	June 1		Backpack	0	None
19d	Oyster Point Marina	3	None	1.66	0.03 m <sup>2</sup>	0	June 1		Backpack	0	None
19e	Oyster Point Park	3	None	2.37	0.1 m <sup>2</sup>	0	June 1		Backpack	0	None
19f	Point San Bruno	3	None	4.52	0.1 m <sup>2</sup>	0	June 1		Backpack	0	None
19g	Seaplane Harbor	3	None	4.12	0.9 m <sup>2</sup>	0	June 1		Airboat	0	None
19h	SFO shoreline	1	None	25.15	021 ac	3	Sep. 1	<ul style="list-style-type: none"> <li>Invasive <i>Spartina</i> accounts for the majority of high-tide refugia and nesting habitat at this location.</li> </ul>	Airboat	4	None

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19i	Mills Creek Mouth	3	None	2.75	12.6 m <sup>2</sup>	0	June 1		Airboat	0	None
19j	Easton Creek Mouth	3	None	6.17	10.1 m <sup>2</sup>	0	June 1		Airboat	0	None
19k	Sanchez Marsh	3	None	15.17	0.55 ac	0	June 1		Airboat, Digging	0	None
19l	Burlingame Lagoon	3	None	5.34	57.1 m <sup>2</sup>	0	June 1		Airboat	0	None
19m	Fisherman's Park	3	None	1.32	0	0	June 1		n/a (zero detection)	0	None
19n	Coyote Point Marina	3	None	11.99	1.4 m <sup>2</sup>	0	June 1		Backpack	0	None
19o	San Mateo Creek	3	None	3.02	1.6 m <sup>2</sup>	0	June 1		Backpack	0	None
19p.1	Seal Slough Mouth-Central Marsh	1	None	37.75	0.20 ac	0	Sep. 1	<ul style="list-style-type: none"> <li>▪ <i>Grindelia</i> along shore, north/south berm and PG&amp;E boardwalk</li> </ul>	Airboat	4	<ul style="list-style-type: none"> <li>▪ Two artificial floating islands installed in 2012 and removed in fall 2013 (USGS)</li> <li>▪ Cut berm to create several raised berms</li> <li>▪ Plant berms/islands with <i>Grindelia stricta</i> and other plants</li> </ul>
19p.2	Seal Slough Mouth-Peripheral Marshes	3	None	30.81	0.11 ac	0	June 1		Backpack	0	None
19q	Foster City	3	None	5.41	0	0	June 1		n/a (zero detection)	0	None
19r	Anza Lagoon	3	None	4.39	0	0	June 1		n/a (zero detection)	0	None
19s	Maple Street Channel	3	None	0.74	0	0	June 1		n/a (zero detection)	0	None
20a	Oyster Bay Regional Shoreline	3	None	14.23	0.13 ac	0	June 1		Airboat	0	None
20b	Oakland Golf Links	3	None	1.92	0.10 ac	0	June 1		Backpack	0	None
20c	Dog Bone Marsh	3	None	7.04	7.5 m <sup>2</sup>	0	June 1		Backpack	0	None

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20d.1	Citation Marsh South	1	None	44.35	13.2 m <sup>2</sup>	0	Sep. 1	<ul style="list-style-type: none"> <li>Three islands and berms with dense weedy vegetation</li> <li>Fairly extensive <i>Grindelia</i> along some channels</li> <li>Tidal action is muted, so even at king tides, extensive high-tide refugia are available</li> </ul>	Backpack	0	None
20d.2	Citation Marsh North	4	None	67.07	8.26 ac	7	n/a		No Treatment 2015	n/a	<ul style="list-style-type: none"> <li>Installed over 2,500 <i>Grindelia stricta</i> along channels between winters 2012-14 and 2014-15</li> </ul>
20e	East Marsh	2	None	37.16	2.5 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> along channels and levees</li> <li>Water control structure prevents extreme high tides</li> </ul>	Backpack	0	None
20f	North Marsh	4	None	88.94	22.77 ac	26	n/a		No Treatment 2015	n/a	<ul style="list-style-type: none"> <li>Installed 550 <i>Grindelia stricta</i> on existing islands in winter 2012-13</li> </ul>
20g	Bunker Marsh	4	None	35.81	7.59 ac	6	n/a		No Treatment 2015	n/a	<ul style="list-style-type: none"> <li>Installed over 1,600 <i>Grindelia stricta</i> along channels and on berm/island edges between winters 2012-13 and 2014-15</li> <li>Installed two high tide refuge islands planted with <i>Grindelia stricta</i> in winter 2013-14</li> </ul>
20h.1	San Lorenzo Cr & Mouth North	4	None	8.00	7.5 m <sup>2</sup>	0	n/a		No Treatment 2015	n/a	<ul style="list-style-type: none"> <li>Installed 400 <i>Grindelia stricta</i> and <i>Distichlis spicata</i> along channel in winter 2012-13</li> </ul>
20h.2	San Lorenzo Cr & Mouth South	3	None	25.57	129.4 m <sup>2</sup>	0	June 1		Backpack	0	None
20i	Bockmann Channel	3	None	2.50	0.3 m <sup>2</sup>	0	June 1		Backpack	0	None
20j	Sulphur Creek	3	None	8.37	0	0	June 1		n/a (zero detection)	0	None
20k	Hayward Landing	2	None	11.61	2.3 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> along channels and levees</li> </ul>	Backpack	0	None
20l	Johnson's Landing	3	None	10.12	2.0 m <sup>2</sup>	0	June 1		Backpack	0	<ul style="list-style-type: none"> <li>Installed 140 <i>Spartina foliosa</i> during winter 2014-15</li> </ul>
20m	Cogswell Marsh - Quadrant A	2	None	35.00	74.9 m <sup>2</sup>	2	June 1	<ul style="list-style-type: none"> <li>Two large islands vegetated with dense weedy vegetation</li> </ul>	Backpack	0	<ul style="list-style-type: none"> <li>Installed over 10,700 <i>Grindelia stricta</i>, <i>Distichlis spicata</i>, <i>Spartina foliosa</i> and upland transition zone species between winters 2012-13 and 2014-15</li> </ul>

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20n	Cogswell Marsh - Quadrant B	4	None	100.16	21.41 ac	25	n/a		No Treatment 2015	n/a	<ul style="list-style-type: none"> <li>Installed over 9,200 <i>Grindelia stricta</i>, <i>Triglochin maritima</i> and <i>Distichlis spicata</i> along channel and island edges between winters 2012-13 and 2014-15</li> <li>Install three artificial floating islands and three high tide refuge islands planted with <i>Grindelia</i></li> </ul>
20o	Cogswell Marsh - Quadrant C	4	None	49.78	1.20 ac	11	n/a		No Treatment 2015	n/a	<ul style="list-style-type: none"> <li>Installed over 6,900 <i>Grindelia stricta</i>, <i>Triglochin maritima</i> and <i>Distichlis spicata</i> along channel and island edges between winters 2012-13 and 2013-14</li> <li>Three high tide refuge islands planted with <i>Grindelia stricta</i> were constructed in winter 2013-14</li> </ul>
20p	Hayward Shoreline Outliers	3	None	3.87	2.7 m <sup>2</sup>	0	June 1		Backpack	0	None
20q	San Leandro Shoreline Outliers	3	None	11.58	0.18 ac	0	June 1		Backpack	0	None
20r	Oakland Airport	3	None	22.53	0.08 ac	0	June 1		Backpack	0	None
20s	HARD Marsh	2	None	65.86	5.8 m <sup>2</sup>	0	Aug. 12	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> along channels and levees</li> </ul>	Backpack	0	<ul style="list-style-type: none"> <li>Installed over 6,000 <i>Grindelia stricta</i>, <i>Spartina foliosa</i>, <i>Distichlis spicata</i>, and <i>Jaumea carnosa</i> between winters 2013-14 and 2014-15</li> </ul>
20t	San Leandro Marina	3	None	9.71	0.1 m <sup>2</sup>	0	June 1		Backpack	0	None
20u	Estudillo Creek Channel	3	None	14.36	95.6 m <sup>2</sup>	0	June 1		Backpack	0	None
20v	Hayward Landing Canal	3	None	5.63	43.6 m <sup>2</sup>	0	June 1		Backpack	0	None
20w	Triangle Marsh - Hayward	2	None	12.35	0.2 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> along eastern levee</li> </ul>	Backpack	0	<ul style="list-style-type: none"> <li>Installed over 1,800 <i>Grindelia stricta</i> and <i>Spartina foliosa</i> between winters 2013-14 and 2014-15</li> </ul>
21a	Ideal Marsh – North*	3	None	41.85	124.2 m <sup>2</sup>	0	June 1		Backpack	0	None
21b	Ideal Marsh - South	2	None	131.23	0.13 ac	9	Aug. 12	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> along channels and eastern levee</li> </ul>	Backpack	0	None
22a	Wildcat Marsh	2	None	333.53	0.10 ac	40	Sep. 1	<ul style="list-style-type: none"> <li><i>Grindelia</i> along channels and levees</li> <li>Extensive <i>Spartina foliosa</i> throughout the site</li> <li>PG&amp;E boardwalk</li> </ul>	Airboat	0	None
22b.1	San Pablo Marsh East	1	None	20.62	0.19 ac	9	Sep. 1	<ul style="list-style-type: none"> <li>Extensive <i>Grindelia</i> and other tall vegetation in northeast and south-central areas and along the tidal channels</li> </ul>	Airboat	4	None

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22b.2	San Pablo Marsh West	2	None	130.53	0.36 ac	14	Sep.1	<ul style="list-style-type: none"> <li>Extensive <i>Grindelia</i>, and other tall vegetation along the tidal channels</li> <li>Extensive robust <i>Spartina foliosa</i> and <i>Bolboschoenus maritimus</i> throughout the site</li> <li>PG&amp;E boardwalk</li> </ul>	Airboat	0	None
22c	Breuner Marsh/Rheem Creek	2	None	35.77	0.24 ac	4	Sep.1	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> and other tall vegetation, particularly on the northern portion of the site</li> <li>Extensive <i>Spartina foliosa</i> throughout the site</li> </ul>	Backpack	0	None (Note: this is an East Bay Regional Park District restoration site)
22d	Stege Marsh	2	None	52.28	54.3 m <sup>2</sup>	7	Sep.1	<ul style="list-style-type: none"> <li>Large island on northeast portion of the site</li> <li>Patches <i>Grindelia</i> and other vegetation on the marsh edges</li> <li>Extensive <i>Spartina foliosa</i> throughout the site</li> </ul>	Backpack	0	None
22e	Hoffman Marsh	2	None	36.04	0	1	June 1	<ul style="list-style-type: none"> <li><i>Grindelia</i> and other vegetation on berms and marsh edges</li> <li>Extensive <i>Spartina foliosa</i> throughout the site</li> <li>Upland vegetation along trail</li> </ul>	n/a (zero detection)	0	None
22f	Richmond/Albany Shoreline	3	None	34.21	72.0 m <sup>2</sup>	0	June 1		Backpack	0	None
23a	Brickyard Cove	3	None	1.68	0	0	June 1		n/a (zero detection)	0	None
23b	Beach Drive	3	None	8.69	82.1 m <sup>2</sup>	0	June 1		Backpack	0	None
23c	Loch Lomond Marina	3	None	4.60	0.4 m <sup>2</sup>	0	June 1		n/a (zero detection)	0	None
23d.1	San Rafael Canal Mouth North East	2	None	3.10	40.5 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> and upland/ornamental vegetation on marsh edge</li> <li>Extensive <i>Spartina foliosa</i></li> </ul>	n/a (zero detection)	0	None
23d.2	San Rafael Canal Mouth North West	2	None	3.60	0.03 m <sup>2</sup>	0	Sept 1	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> and upland/ornamental vegetation on marsh edge</li> <li>Extensive <i>Spartina foliosa</i> in the portions of the site that are occupied by rails</li> </ul>	Backpack	0	None

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23e	Muzzi and Martas Marsh	2	None	177.04	0.08 ac	29	June 1 to treat <i>densiflora</i>  Sep. 1 to treat <i>alterniflora</i>	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> along channels and marsh edge</li> <li>Extensive <i>Spartina foliosa</i> throughout the site</li> <li>Island in west-central portion of the site</li> <li>PG&amp;E boardwalk</li> </ul>	Digging, Backpack	0	<ul style="list-style-type: none"> <li>Five high tide refuge islands planted with <i>Grindelia stricta</i> were constructed during winter 2014-15</li> </ul>
23f	Paradise Cay	3	None	22.35	0.4 m <sup>2</sup>	0	June 1		Digging	0	None
23g	Greenwood Beach	3	None	3.95	1.3 m <sup>2</sup>	0	June 1		Digging	0	None
23h	Strawberry Point	3	None	13.76	1.6 m <sup>2</sup>	0	June 1		Digging	0	None
23i	Strawberry Cove	3	None	10.55	23.7 m <sup>2</sup>	0	June 1		Backpack	0	None
23j	Bothin Marsh	2	None	106.16	56.5 m <sup>2</sup>	3	Sep. 1	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> along channels and berms</li> <li>Extensive <i>Spartina foliosa</i> throughout the site</li> <li>PG&amp;E boardwalk</li> </ul>	Backpack	0	None
23k	Sausalito	3	None	22.66	0.1 m <sup>2</sup>	0	June 1		Backpack	0	None
23l	Starkweather Park	3	None	8.31	1.7 m <sup>2</sup>	0	June 1		n/a (zero detection)	0	None
23m	Novato	2	None	1023.51	0	No Data (125 in 2014)	Sep. 1	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> along extensive network of channels and along levees</li> <li>Extensive <i>Spartina foliosa</i> throughout the site</li> <li>PG&amp;E boardwalk</li> </ul>	n/a (zero detection)	0	<ul style="list-style-type: none"> <li>Installed two artificial floating islands in 2012 and removed in fall 2013 (USGS)</li> </ul>
23n	Triangle Marsh - Marin	2	None	19.10	12.9 m <sup>2</sup>	0	June 1	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> along channels and berms</li> </ul>	Backpack	0	None
23o	China Camp	2	None	243.53	0	No Data (28 in 2014)	Sep. 1	<ul style="list-style-type: none"> <li>Mature <i>Grindelia</i> along extensive network of channels and along levees</li> <li>Extensive <i>Spartina foliosa</i> and <i>Bolboschoenus maritimus</i> throughout the site</li> <li>PG&amp;E boardwalk</li> <li>Large island with upland vegetation on southern portion of the site</li> <li>Three upland areas with vegetation protrude into the marsh</li> </ul>	n/a (zero detection)	0	None

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24a	Petaluma River - Upper	2	None	138.15	0.09 ac	2	Sep. 1	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> along channels and throughout the site</li> <li>Extensive <i>Spartina foliosa</i> and <i>Bolboschoenus maritimus</i> throughout site</li> <li>Patches of upland vegetation along the marsh edge</li> </ul>	Airboat	0	None
24b	Grey's Field	3	None	108.58	0	0	June 1		n/a (zero detection)	0	None
24c	Petaluma Marsh	2	None	3514.15	.02 m <sup>2</sup>	No Data (10 – 11 in 2014)	Sep. 1	<ul style="list-style-type: none"> <li>Patches of <i>Grindelia</i> in the marsh and on the eastern levee bank</li> </ul>	Airboat	0	None
26a	White Slough/Napa River	3	None	563.65	0	No Data (0 in 2014)	June 1		n/a (zero detection)	0	None
26b	San Pablo Bay NWR Shoreline	3	None	2577.66	0.10 ac	0	June 1		Backpack, Digging	0	None
26c	Sonoma Creek	3	None	1048.11	89.6 m <sup>2</sup>	TBD	June 1		Backpack	0	None
26d	Sonoma Baylands	2	None	1334.45	0	TBD	Sep. 1	<ul style="list-style-type: none"> <li>Extensive areas of <i>Grindelia</i> throughout the marsh</li> <li>Extensive <i>Spartina foliosa</i> has colonized the site since breaching</li> <li>Berms vegetated with <i>Grindelia</i> and <i>Baccharis</i></li> </ul>	n/a (zero detection)	0	None

**Key**

- \* 2012 Biological Opinion Group/Table (1= 2011 no treatment (now permitted after 2012), 2= treated rail sites, 3=non-rail sites, 4= 2011-2014 no treatment sites)
- 1 California Ridgway's rail habitat area calculated from heads-up digitizing in GIS of site/sub-area boundaries by clapper rail biologists experienced with site-specific conditions, with exclusion of unvegetated areas or habitat unsuitable for clapper rail use (e.g., open mudflats, rip rap).
- 2 *Spartina* cover is based on the mapped extent of hybrid *Spartina* in 2014, and is provided as a proxy for "2015 Treatment Area". Actual current year (2015) inventory and treatment data will not be available until 2015.
- 3 Numbers are derived from draft data from California Ridgway's rail surveys conducted by ISP and USFWS in 2015, using the minimum count of the highest round survey. Data from partner organizations (Avocet Research and Associates and San Pablo Bay National Wildlife Refuge) have not been shared yet and are indicated by "TBD."
- 4 Earliest possible entry date from the Biological Opinion is listed for the site. Entry date of June 1 is required at sites with *Spartina densiflora* to prevent seeding.
- 5 Backpack spraying may accompany all airboat, truck, and Marshmaster use where that method is more efficient and/or more sensitive, and thus backpack spraying is noted here only when no other herbicide treatment method is proposed.
- 6 Take estimates (harm) are based on the estimated number of California clapper rails that may be lost from the sub-area after invasive *Spartina* is treated, and after the treated *Spartina* disappears (which will likely not occur until at least the winter after treatment).
- 7 Take estimates are based on best professional judgment; although a range may be more accurate (i.e., a range would more likely encompass the actual number of rails taken), a specific take number was chosen in order to determine the appropriate level of habitat enhancement (such as number of artificial floating islands) at each site.
- 8 Exact positioning of artificial floating islands is determined at the time of deployment based on habitat conditions, channel morphology, and other factors assessed by biologists experienced with clapper rail ecology. The exact positioning of high tide refuge islands is also determined based on the factors described above. Six "pilot high tide refuge islands" were installed during the fall/winter of 2012; 16 islands were installed in the fall/winter of 2013. In winter 2014-15 approximately 74,000 plants and 20 high tide refuge islands are slated to be installed.

- 9 Proposed restoration opportunities in addition to floating and high tide refuge islands (e.g., berm excavation, *Grindelia stricta* plantings) are preliminary and will be designed further contingent on funding and if landowner permission is granted. These additional restoration opportunities are not required by USFWS (unlike floating and high tide refuge islands) but may be initiated in an effort to increase California clapper rail populations.
- 10 All plant numbers listed under marsh enhancements are stated as numbers of plugs installed rather than number of stems installed