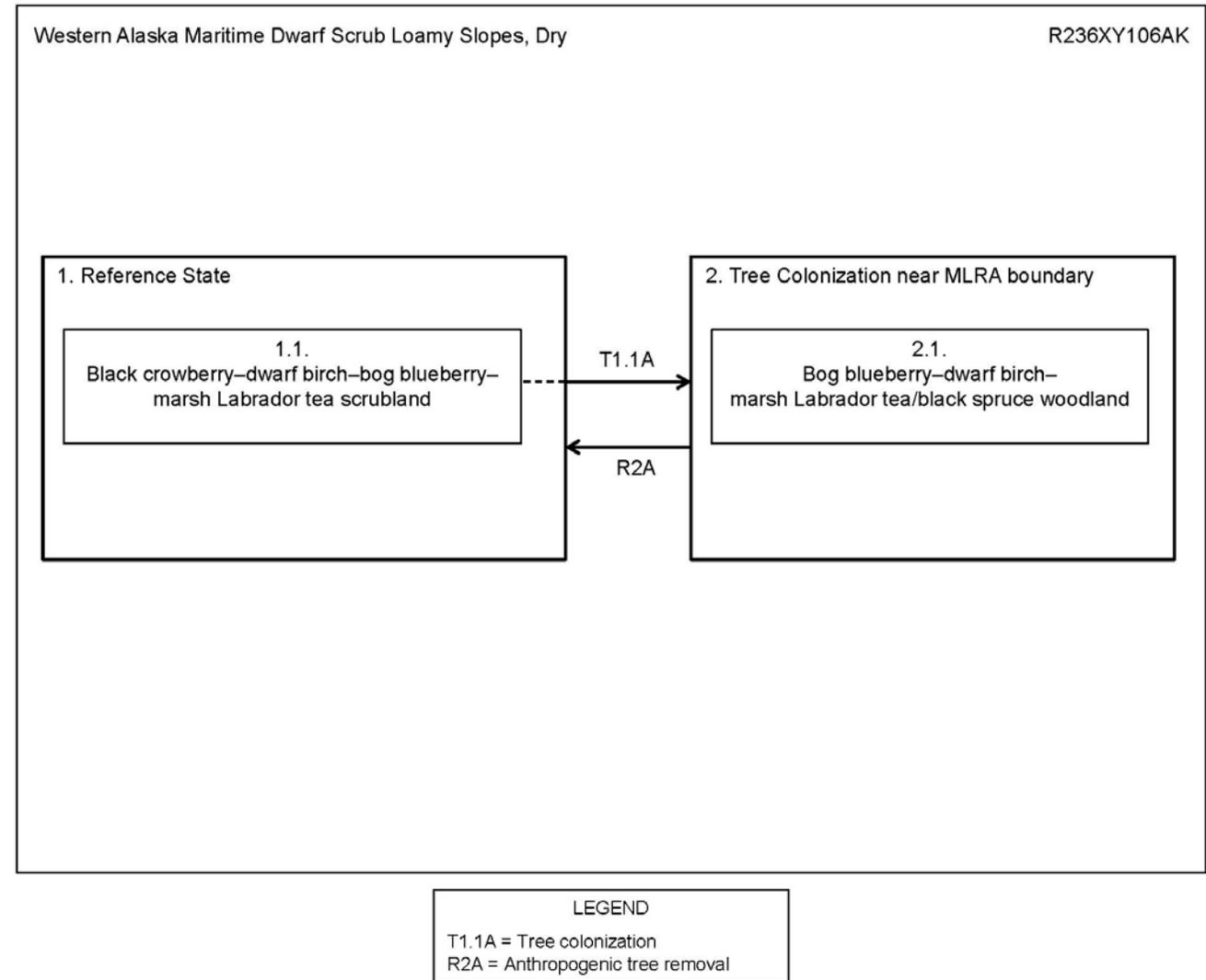


Ecological Site Description ID:	R236XY106AK—Western Alaska Maritime Dwarf Scrub Loamy Slopes, Dry
Ecological Dynamics of the Site:	
<p>This western Alaska maritime ecological site is in linear to convex areas on mountain back slopes and toeslopes. The site is typically 292 to 912 feet above sea level with slopes of 3 to 39 percent. Slope aspect does not appear to influence the plant community dynamics of this site because it is on all aspects.</p> <p>This ecological site is correlated to soil component D36-Western maritime low scrub loamy glaciated slopes. Soil characteristics that are likely to influence plant community dynamics on this site include the cryic soil temperature regime, the udic moisture regime with moderately slow permeability to a depth of 40 inches, and a moderately acidic to extremely acidic (pH 3.7 to 5.6) first mineral horizon. Organic material content in the surface layer is generally 10 to 20 percent. The soils are well drained and have medium runoff potential. Ponding and flooding have not been recorded. The annual precipitation is 25 to 65 inches, and the annual frost-free period is 80 to 140 days. The parent material is herbaceous organic material over coarse-silty loess over gravelly till.</p> <p>The reference community phase is typified by scrubland consisting of low and dwarf shrubs with low concentrations of lichen and moss ground cover. The vegetative community associated with this ecological site is similar to the reference community phase of site R236XY132AK (Western Alaska Maritime Dwarf Scrub Loamy Slopes, Very Dry); however, this site is on mountains and site R236XY132AK is on hills and plains. The reference community phase associated with site R236XY132AK is subject to a disturbance regime of grazing and wind erosion, and this reference community phase is not. Vegetative differences may be a reflection of further differences in restrictive layers, soil permeability rate, soil pH, and parent material. Ecological site R236XY105AK (Western Alaska Maritime Mosaic Loamy Slopes) is on similar upland mountain back slopes and footslopes, but the topography of that site is concave to linear and that of this site is linear to convex. Runoff class and surface layer pH and organic matter content also differ. These differences and the ensuing contrasts in reference states, community phases, and disturbance regimes make use of three unique ecological sites necessary.</p> <p>No known major disturbance regime is associated with this ecological site. Natural variations in plant cover are expected; however, shrubs are the dominant plant group in this community. In some areas of this ecological site that are adjacent to the boundary of other major land resource areas (MLRAs), black spruce (<i>Picea mariana</i>) has begun to naturally colonize the scrubland communities. This transitional zone is recorded as an alternative state. Further investigation is needed to quantify the biotic or abiotic consequences of this transition.</p>	

State and Transition Diagram:



State ID Number:	1	State Name:	Reference State
State Narrative:	<p>The reference state supports one community phase, which is described as dense scrubland. No known disturbance regime is associated with this ecological site; however, an alternative state is along the boundary between this MLRA and others. This alternative state is in areas where black spruce (<i>Picea mariana</i>) is colonizing areas outside of its historical range. Tree colonization is a natural process but it is new to these areas; therefore, it has been labeled as an alternative state.</p> <p>This report provides baseline vegetation inventory data for this site. Future data collection is needed to provide further information about existing plant communities and the disturbance regimes that would result in transitions from one community to another.</p>		

Phase 1.1			
Community Phase Number:	1.1	Community Phase Name:	Black crowberry-dwarf birch-bog blueberry-marsh Labrador tea scrubland
Community Phase Narrative:			
<p>The reference community phase for the ecological site is characterized by low, dense scrubland. The annual production is visually estimated to occur dominantly among shrubs with small proportions among the graminoid and forb groups. Because of a lack of trees, total production is expected to be less in this phase than in the alternative state community. A typical area consists of various shrubs, commonly including black crowberry (<i>Empetrum nigrum</i>), dwarf birch (<i>Betula nana</i>), marsh Labrador tea (<i>Ledum palustre ssp. decumbens</i>), and bog blueberry (<i>Vaccinium uliginosum</i>). Other species that may be present are spirea (<i>Spiraea stevenii</i>), lingonberry (<i>Vaccinium vitis-idaea</i>), tealeaf willow (<i>Salix pulchra</i>), bluejoint grass (<i>Calamagrostis canadensis</i>), and various sedges (<i>Carex spp.</i>). Various mosses (total mean cover ~10 percent) and lichens (~11 percent) are generally in the ground cover. Other typical ground cover includes herbaceous litter (~64 percent cover) and woody litter (~18 percent).</p>			

Community Phase Canopy Cover

(Vegetation data in the table are provided as constancy (percent) and average canopy cover (percent) of the most dominant and ecologically relevant species for this community phase.)

Plant group	Common name	Scientific name	USDA plant code	Constancy (percent)	Average canopy cover (percent)
S	Dwarf birch	<i>Betula nana</i>	BENA	100.0	41.0
S	Black crowberry	<i>Empetrum nigrum</i>	EMNI	100.0	55.0
S	Marsh Labrador tea	<i>Ledum palustre ssp. decumbens</i>	LEPAD	100.0	17.6
S	Bog blueberry	<i>Vaccinium uliginosum</i>	VAUL	100.0	21.0
S	Lingonberry	<i>Vaccinium vitis-idaea</i>	VAVI	80.0	11.3
S	Tealeaf willow	<i>Salix pulchra</i>	SAPU15	80.0	3.1
S	Beauverd spirea	<i>Spiraea stevenii</i>	SPST3	60.0	11.7
G	Bluejoint grass	<i>Calamagrostis canadensis</i>	CACA4	80.0	1.3

State ID Number:	2	State Name:	Black spruce colonization
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State Narrative:

This alternative state describes changes to the reference state due to the colonization and establishment of black spruce (*Picea mariana*). Black spruce is naturally encroaching into some areas of this ecological site from adjacent MLRAs. This tree species competes with low and dwarf shrubs in the reference community phase, allowing for black spruce woodland to develop while also continuing to support many of the shrub and graminoid species extant in the reference community phase.

The presence of trees is known to cause changes in soil dynamics, ground cover, animal habitat, and disturbance dynamics (Bonan and Shugart 1989; Imbeau and others, 1999; Roberge, 1976; Bisbe and others, 2001). Black spruce trees in this ecological site is relatively new, so the full effect of this natural migration is currently unknown.



Community Phase Number:	2.1	Community Phase Name:	Bog blueberry-dwarf birch-marsh Labrador tea/black spruce woodland
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Community Phase Narrative:

This alternative state community phase is associated with areas where black spruce (*Picea mariana*) has colonized and established a self-sustaining population on the scrubland described by the reference community phase. It is characterized by black spruce woodland with an understory of low and dwarf shrubs. Annual production is visually estimated to occur mainly among shrubs. Production is measurable in black spruce, but it tends to grow slowly. A typical area has some dense black spruce with marsh Labrador tea (*Ledum palustre ssp. decumbens*), bog blueberry (*Vaccinium uliginosum*), dwarf birch (*Betula nana*), and lingonberry (*Vaccinium vitis-idaea*) in the understory and in non-treed areas. Graminoids such as Bigelow's sedge (*Carex bigelowii*) and bluejoint grass (*Calamagrostis canadensis*) may be present. Mosses and lichens may be present, in high amounts in some areas. Other ground cover typically includes herbaceous and woody litter.

Community Phase Canopy Cover

(Vegetation data in the table are provided as constancy (percent) and average canopy cover (percent) of the most dominant and ecologically relevant species for this community phase.)

Plant group	Common name	Scientific name	USDA plant code	Constancy (percent)	Average canopy cover (percent)
T	Black spruce	<i>Picea mariana</i>	PIMA	100.0	25.0^
S	Marsh Labrador tea	<i>Ledum palustre ssp. decumbens</i>	LEPAD	100.0	60.0
S	Bog blueberry	<i>Vaccinium uliginosum</i>	VAUL	100.0	40.0
S	Lingonberry	<i>Vaccinium vitis-idaea</i>	VAVI	100.0	25.0
S	Dwarf birch	<i>Betula nana</i>	BENA	100.0	20.0
S	Black crowberry	<i>Empetrum nigrum</i>	EMNI	100.0	5.0

^ Tall, medium, and stunted individuals are counted as canopy trees. Regenerative individuals are not included.

Note: The vegetation and soils for this community phase were sampled at one location. Due to the limited data available, personal field observations were used to aid in describing this plant community.

State Transitions and Restoration Pathways

State Transition Pathways			
Transition Number	From	To	Transition Narrative
T1.1A	1	2	This state transition is in some areas along the boundary of a treed MLRA. Black spruce seedlings compete for space and light with the low and dwarf shrubs in the reference community phase. As black spruce naturally spreads, it is likely that some of the individual shrubs may be shaded out. However, this natural colonization does not appear to remove any of the species extant in the reference community phase. Further investigation is needed to document the spatial rate of colonization as well as the ecological effects of this migration.
State Restoration Pathways			
Restoration Pathway Number	From	To	Restoration Pathway Narrative
R2A	2	1	Currently, there is no evidence that black spruce woodland will naturally return to the scrubland reference community phase of the reference state. Anthropogenic forestry activity may hypothetically eradicate black spruce from the community with the potential outcome being a scrubland community. How the tree-cleared community will react to decreased competition for light and space is currently unknown. Of note, the low use and profitability of this particular tree species suggests that thinning is unlikely to take place in uninhabited areas.

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This report is interim and subject to change.