

18200

Hawai'i Lowland Mesic Grassland

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Vegetation Type

Herbaceous

Map Zones

79

Geographic Range

This ecological system occurs on Kaua'i, O'ahu, Moloka'i and Maui islands of Hawai'i. Lihau, Launiupoko.

Biophysical Site Description

Lowland Mesic grasslands can be found on most of the islands from 300-2,000m (1,000-6,500ft). This lowland ecological system occurs over a broad moisture range within the moderately dry and seasonally mesic zones (zones 3 and 4) of the seven moisture zones developed for the Hawai'ian Islands by Price et al. (2007). Annual rainfall is 150-1,000mm (6-40in) which falls mostly from November to March. Soils are generally shallow. On the younger islands it can occur on young pāhoehoe that is beginning to form a thin mantel of soil.

Vegetation Description

These communities are floristically poor, dominated by *Eragrostis variabilis*, on moderate to steep slopes of Kaua'i, O'ahu, Moloka'i, and Maui. These grasslands form a near continuous dense ground cover, ~1.2m (1.5 feet) tall, that may extend down slope to coastal dry slopes. Associated species include *Metrosideros tremuloides*, *Bidens* spp., *Dodonaea viscosa*, and *Gouania hillebrandii*. Most examples of this system have been invaded by alien species. Lowland Mesic Grasslands grade into mesic shrublands and Forests where *Metrosideros polymorpha* is frequently a dominant species.

BpS Dominant and Indicator Species

Symbol	Scientific Name	Common Name
ERVA	<i>Eragrostis variabilis</i>	Kawelu
METR5	<i>Metrosideros tremuloides</i>	Lehua 'ahihi
DOVI	<i>Dodonaea viscosa</i>	Florida hopbush
GOHI2	<i>Gouania hillebrandii</i>	Hairyfruit chewstick
MEPO5	<i>Metrosideros polymorpha</i>	'ohi'a lehua
BIDEN	<i>Bidens</i>	Beggarticks

Species names are from the NRCS PLANTS database. Check species codes at <http://plants.usda.gov>.

Disturbance Description

The primary disturbance factors in this system are landslides and surface fires.

Fire Frequency

Severity	Avg FI	Percent of All Fires	Min FI	Max FI
Replacement				
Moderate (Mixed)				
Low (Surface)	60	100		
All Fires	60	100		

Fire interval is expressed in years for each fire severity class and for all types of fire combined (All Fires). Average FI is the central tendency modeled. Percent of all fires is the percent of all fires modeled in that severity class. Minimum and Maximum FIs show the relative range of fire intervals as estimated by model contributors, if known.

Scale Description

Adjacency or Identification Concerns

Lowland Mesic Grasslands grade into mesic shrublands and Forests where *Metrosideros polymorpha* is frequently a dominant species.

Issues or Problems

Native Uncharacteristic Conditions

Comments

Succession Classes

Mapping Rules

Upper Layer Lifeform	Height (m)	Canopy Cover (%)									
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Herb	0-0.5	A	A	A	A	A	A	A	A	A	A
Herb	0.5-1.0	B	B	B	B	B	B	B	B	B	B
Herb	>1.0	B	B	B	B	B	B	B	B	B	B
Shrub	0-0.5	B	B	UN	UN	UN	UN	UN	UN	UN	UN
Shrub	0.5-1.0	B	B	UN	UN	UN	UN	UN	UN	UN	UN
Shrub	1.0-3.0	B	B	UN	UN	UN	UN	UN	UN	UN	UN
Shrub	>3.0	B	B	UN	UN	UN	UN	UN	UN	UN	UN
Tree	0-5	B	UN	UN	UN	UN	UN	UN	UN	UN	UN
Tree	5-10	B	UN	UN	UN	UN	UN	UN	UN	UN	UN
Tree	10-25	B	UN	UN	UN	UN	UN	UN	UN	UN	UN
Tree	25-50	B	UN	UN	UN	UN	UN	UN	UN	UN	UN
Tree	>50	B	UN	UN	UN	UN	UN	UN	UN	UN	UN

Succession class letters A-E are described in the Succession Class Description section. Some classes use a leafform distinction where a qualifier is added to the class letter: Brdl (broadleaf), Con (conifer), or Mix (mixed conifer and broadleaf). UN refers to uncharacteristic native or a combination of height and cover that would not be expected under the reference condition. NP refers to not possible or a combination of height and cover which is not physiologically possible for the species in the BpS.

Description

Class A	17	Early Development 1 - All Structures
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
ERVA	Eragrostis variabilis	Kawelu	Lower

Description

Grassy recovery post land slide, little to no shrubs.

Maximum Tree Size Class

None

Class B	83	Mid Development 1 - Open
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Indicator Species

Symbol	Scientific Name	Common Name	Canopy Position
ERVA	Eragrostis variabilis	Kawelu	Mid-Upper

Description

Grass dominated; little to no shrubs.

Maximum Tree Size Class

None

Model Parameters

Deterministic Transitions

From Class	Begins at (yr)	Succeeds to	After (years)
Early1:ALL	0	Mid1:OPN	50
Mid1:OPN	51	Mid1:OPN	999

Probabilistic Transitions

Disturbance Type	Disturbance occurs In	Moves vegetation to	Disturbance Probability	Return Interval (yrs)	Reset Age to New Class Start Age After Disturbance?	Years Since Last Disturbance
Optional 1	Early1:ALL	Early1:ALL	0.004	250	No	0
Optional 1	Mid1:OPN	Early1:ALL	0.004	250	Yes	0
Surface Fire	Mid1:OPN	Mid1:OPN	0.02	50	No	0

Optional Disturbances

Optional 1: Land Slides

References

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NatureServe. 2008. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.0. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: September 3, 2008).

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