

Aquatic Landtype Association Legend

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ALTAs display historic aquatic settings that consider both terrestrial disturbance regimes (fire, erosion) and aquatic disturbance regimes (runoff character, flood timing and how channels process peak flows and sediment inputs). They have considerable overlap with VRUs. ALTAs consider not only landform, geology, and vegetation, but weigh elevation fairly heavily because of the role of ground water temperature and base flows in limiting aquatic habitats, and the relative significance of rain on snow at lower elevations, and sustained runoff at higher elevations. ALTAs are built looking at not only the component landforms, but the included channel systems, in particular, their size and gradient.

ALTA mapping has been completed for the south Fork clearwater subbasin and Selway subbasin. it is not complete for the Salmon river subbasin.

The following legend is tentative. Significant revisions can be expected when we are able to evaluate stream survey data and valley bottom composition by ALTA.

ALTA 1 Broad convex ridges, high elevation, granitic

These are above about 5500 feet elevation, dominantly low relief, with moderate and low gradient channels, mostly low order. These areas historically provided important spawning and rearing habitat for resident and some anadromous species. Snowpack is high, snowmelt is sustained, and groundwater is cold. Base flows are sustained. Fire disturbance is long interval, large size (few thousand to 50,000 acres), often lethal. These areas were important refugia between disturbances at lower elevations. Typical landtype composition: 32A65, 32A66, 33A65, 33A67, 36A66, 36C66, 45C65, 45C66, sometimes 31CH5

ALTA 2 Glaciated slopes, high elevation, granitic

These are above about 6000 feet, dominantly high relief, with high and moderate gradient channels, mostly low order. These historically may have provided some habitat for resident fish in more moderate gradient reaches. Snowpack is high, snowmelt is usually sustained, groundwater is cold. Groundwater upwelling in tills is likely common. Baseflows are sustained. Fire disturbance is long interval, moderate size (few hundred to 10,000 acres), and mixed or lethal. Typical landtype composition: 41E67, 42E67, 42D67, 48D67, 48E67, 48E77 sometimes 60E67, 61E67.

ALTA 3 Breaklands, low elevation, granitics

These are below about 5000 feet, high relief and steep slopes, with high and moderate gradient channels except for large order streams. Channels are usually highly confined in v-shaped valleys. Larger order streams historically provided important spawning and overwintering habitat. Snowpack is low, rain on snow events can occur, and snowmelt is often rapid. Peak flows may be flashy. Fire disturbance is short and moderate interval, moderate size (several hundred to several thousand acres), and low severity or mixed. Mass wasting and debris torrents are major agents of channel change. Typical landtype composition: 61E38, 31D38,

sometimes 31C38, 61E24, 61E32, 61E22, 50EUU, 50CUU, 63E38, sometimes 61EH7.

ALTA 4 Low relief hills, low elevation, granitic

These are below about 5500 feet elevation, dominantly low relief, with moderate and low gradient channels. Larger order channels (3-4th) tend to be low gradient in moderately to poorly confined valleys. These historically provided spawning and rearing habitat for resident and some anadromous species. Snowpack is moderate, rain on snow events can occur, but lower gradient channels moderate peak flows. Fire disturbance is short and moderate interval, moderate size (several hundred to 10,000 acres), and low severity or mixed. Cold groundwater upwelling is infrequent. Typical landtype composition: 22A31, 22A33, 24C33, 24C38 (see also ALTA 6), sometimes 31C38.

ALTA 5 Glacial valley bottoms, low gradient, granitic

These are above about 6000 feet, low relief valleys with moderate and low channel gradients, and often bouldery substrates. Channels are usually poorly to moderately confined in U-shaped valleys. These historically provided important refugia for resident and perhaps some anadromous species. Snowpack is high, snowmelt is usually sustained, and groundwater is cold. Groundwater upwelling in till is likely common. Baseflows are sustained. Fire disturbance is long to very long interval, moderate size (few hundred to 10,000 acres), and mixed severity. Typical landtype composition: 47AD9, 46A66, sometimes 10AD9 and 10A99.

ALTA 6 Low relief hills, mid elevation, granitic

These are at mid elevations in montane basins, 4000-6000 feet, dominantly low relief, with moderate and low channel gradients. Larger order channels (3rd-4th) tend to be low gradient, with gravel and cobble substrates and low confinement. These historically provided important spawning and rearing habitat for resident and anadromous species.?? Snowpack is moderate, but rain on snow events are unlikely. Runoff and baseflows are sustained. Groundwater is usually cold, and groundwater upwelling in alluvial valleys may occur. Fire disturbance is moderate to long interval, often lethal, and moderate in size (several hundred to several thousand acres). Typical landtype composition: 22AH5, 22AH6, 24CH5, 24CH6, 31CH5, sometimes 22A31, 22C33, 24C33, 24C38.

ALTA 7 Breaklands, low elevation, basalt

These are below about 5000 feet, high relief and steep slopes, with high and moderate gradient channels except for large order streams (6th-7th order). These historically provided important overwintering habitat and some spawning habitat for anadromous species. Channels are usually highly confined in narrow valleys. Snowpack is low, rain on snow events can occur, snowmelt is often rapid. Peak flows may be flashy. Fire disturbance is short and moderate interval, moderate size (several hundred to several thousand acres), and low severity or mixed. Debris torrents are major agents of channel change. Erosion hazard is lower than ALTA 3, and channels may be more resistant. Typical landtype composition: 61E3F, 61E2E, 61E 2J, 31D3F, 31C3F.

ALTA 8 Breaklands, moist, metamorphics

These are below about 5000 feet, with high and moderate channel gradients except for larger order streams (6th-7th order). Streams are usually highly confined in narrow valleys. Large order streams historically provided important overwintering habitat and spawning habitat for anadromous species. ?? Snowpack is moderate, rain on snow events can occur, and snowmelt is often rapid. Peak flows may be flashy. Fire disturbance is moderate to long interval, moderate size (several hundred to several thousand acres) and mixed severity. Mass wasting and debris torrents are major agents of channel change. Typical landtype composition: 61E48, 60E48, 31D48, 50EUU, 50CUU, sometimes 31C41. Also includes some 61E38 in lower Selway.

ALTA 9 Low relief hills, mid elevation, highly weathered granitics

These are above about 4000 feet and below about 6400 feet, low relief, with moderate and low gradient channels. Streams are often poorly confined in alluvial valleys. Channels are unresistant and unresilient. They historically provided important spawning and rearing habitat. Snowpack is moderate, rain on snow events seldom occur, and runoff is sustained. Fire disturbance is moderate to long interval, moderate size (several hundred to 10s of thousands of acres, and lethal. Typical landtype composition: 22A6X, 22A6Q, 22AHX, 22AHQ, 24CHX, 24CHQ.

ALTA 10 Alluvial valleys, low elevation, large order streams

These are below about 3000 feet, low relief flood plains and terraces along large rivers. Rivers are usually moderately confined. These areas historically provided important overwintering habitat and some spawning and rearing habitat for anadromous species. ??Snowpack is locally low, rain on snow events locally unlikely, and runoff is moderated by the diversity of environments in the basin. Regional winter storms and spring runoff can result in widespread flooding. Sidechannels and sloughs were historically common. Upstream fire disturbance is moderated by the size of the basin. Local fire disturbance is high frequency, low to mixed severity, and moderate size (hundreds to 10s of thousands of acres). Typical landtype composition: some 10AUU, 13AUU .

ALTA 11 Alpine glaciated slopes, volcanics

These are between 4500 and 8500 feet, high relief, with high and moderate gradient channels, mostly low order. These historically may have provided some habitat for resident fish in more moderate gradient reaches. Snowpack is high, snowmelt is usually sustained, groundwater is cold. Groundwater upwelling in tills is likely common. Baseflows are sustained. Fire disturbance is long interval, moderate size (few hundred to 10,000 acres), and mixed or lethal. Typical landtype composition: 41E67 (in volcanics), 48E6P, 48D6P.

ALTA 15 Plateaus, mid elevation, basalt

These are between about 4000 and 6000 feet elevation, low relief, with moderate and low gradient channels. Channels are usually fairly resistant and resilient. They historically provided habitat primarily for resident fish. ?? Snowpack is moderate, rain on snow events unlikely, and runoff is sustained. Fire disturbance is moderate interval, moderate size (several hundreds to

10,000 acres), and mixed severity. Typical landtype composition: 22AHR, 32AHP, 33

ALTA 16 Plateaus, low elevation, basalt

These are below about 4000 feet elevation, low relief, with low gradient channels. Channels are in poorly confined trough shaped valley bottoms. They become highly entrenched with heavy disturbance. Channels are usually fairly resistant and resilient. They historically provided important spawning and rearing habitat. Snowpack is low, rain on snow events can occur, and runoff in cropland is flashy. Fire disturbance is frequent, moderate size (several hundreds to several thousand acres) and low severity. Typical landtype composition: 27A3F, 22A2J.

ALTA 17 Low relief hills, moist, metamorphics

These are between about 4000 and 5500 feet elevation, with moderate and high gradient channels. Channels are low order, in moderate to highly confined v-shaped or trough-shaped valley bottoms. They are moderately resistant and resilient. These areas historically provided limited habitat. Snowpack is moderate, rain on snow events can occur, but runoff is not often flashy. Fire disturbance is moderate to low frequency, mixed severity and moderate size (hundreds to 10,000 acres). Typical landtype composition: 22A41, 24C41, sometimes 31C41, 22A8B, 24C8B, 31C8B, 32A8B, 32C8B.

ALTA 18 Alluvial valleys, mid and upper elevation

These are above about 3000 feet, with low gradient channels, poorly confined in trough-shaped valley bottoms or flat valleys in canyons. Low gradient channels are usually not resistant or resilient. These areas historically provided important spawning and rearing habitat. Snowpack is moderate to high, rain on snow events seldom occur, and runoff is sustained from adjacent uplands. Fire disturbance is moderate to low frequency, low to mixed severity, and usually only burns as part of extreme fire conditions in the uplands. Typical landtype composition: 10AD9, 10A99

ALTA 21 Mountain uplands, granitic

These are above about 5000 feet, with moderate and high gradient channels, usually well confined in v-shaped or trough-shaped valley bottoms. Channels are usually resistant and resilient. These are cold water source areas, but channels often are too steep or too small for high fish habitat potential. Snowpack is moderate to high, rain on snow events seldom occur, and runoff is usually sustained. Fire disturbance is moderate to low frequency, small to moderate in size (100s to few thousand acres) and mixed severity. This is the poorest defined ALTA, but the concept is one of mini breaklands in headwater areas, at mid to upper elevations so that disturbance is low frequency, higher severity, and usually large order streams are absent. Typical landtype composition: 31DH7, 31CH5, 61EH7, 61E67, 60E67.