Estuary and Tidal Salt Marshes

Common Plants of Western Washington

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Tidal Salt Marshes:

Found throughout the world along coastlines that are protected from wave and storm energy

Ecological structure and function of salt marshes is similar

Complex Zonation of vegetation, animals and microbes based on alterations in:

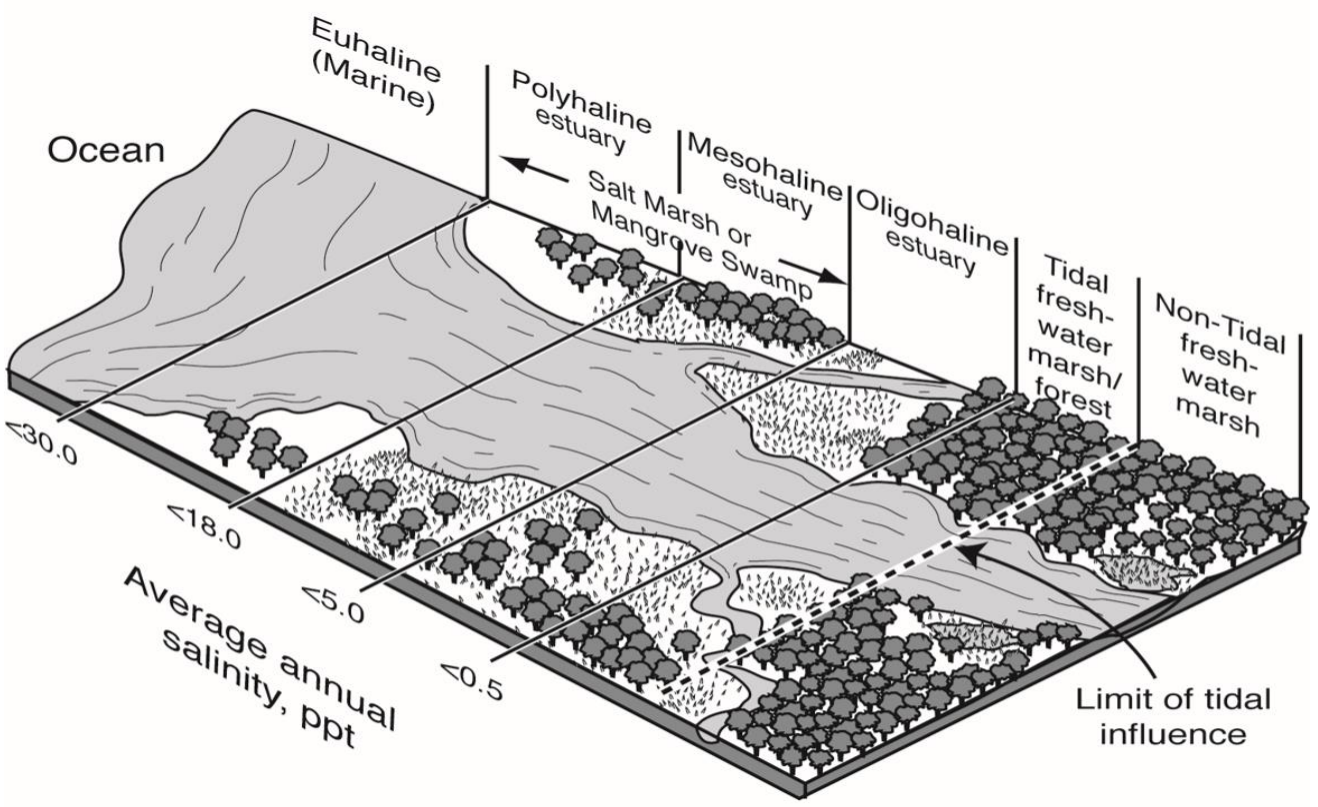
- Salinity
- Drying and submergence
- Daily temperature

Tidal Salt Marshes:

Interface between terrestrial and marine habitats

The physical features of tides, sediments, freshwater inputs, and shoreline structure determine the development and extent of saltmarsh

Inundated during high tide – but not flooded during low tide

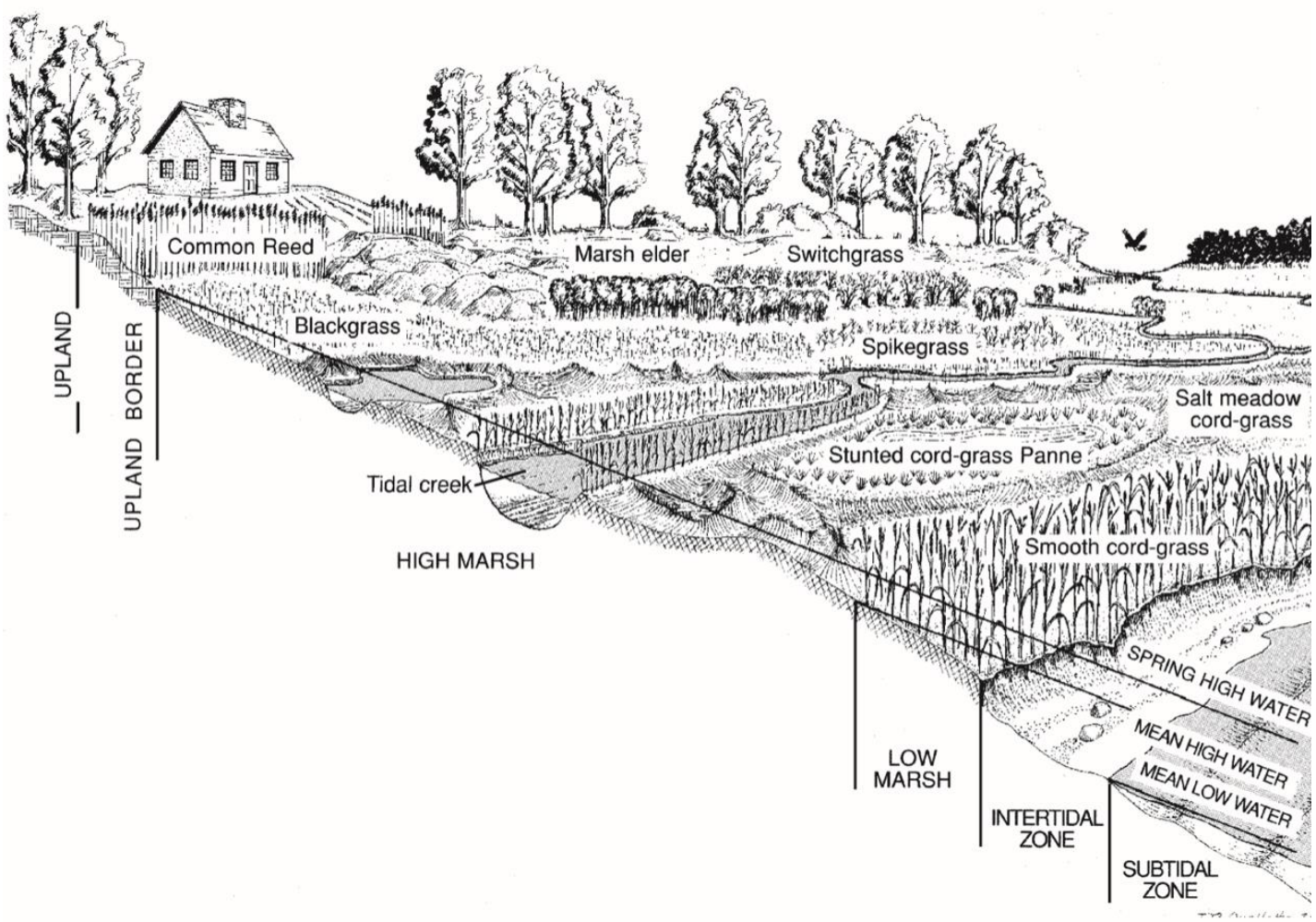


Tidal Salt Marshes

Vegetation:

Plants have adapted to salinity, periodic inundation, temperature extremes

Water water everywhere but not a drop to drink! Plants must adapt to extreme salinities by expending energy to increase their internal osmotic concentration in order to take up water.



Silver Burweed (*Ambrosia chamissonis*)

A. Plant: Succulent perennial, silvery, finely pubescent and forms large clumps

B. Leaves: Mostly alternate, petiolate, the toothed to pinnately dissected

C. Flowers: Leafless, terminal spikes maturing into a sharp bur consisting of a series of flattened prickles

Habitat: Sandy Beaches

Photo credits: A. Ben Legler B. G.D. Carr C. Ben Legler

Pickleweed (*Salicornia virginica)*

A. Plant: Succulent perennial, glaucous, bluish to purple

B. Leaves: Succulent, mealy, cylindrical scales

C. Flowers: Inconspicuous at end of branches, greenish yellow matures into bladder like scales

Habitat: Salt marshes, tide flats, waveless beaches

Photo credits: A. and B. G.D. Carr C. Dana Visalli

Douglas' Aster (*Symphyotrichum subspicatum)*

A. Plant: Perennial herb, stiff stems, leafy stems, hairy, and freely branching

B. Leaves: Lower lanced-shaped, middle oblong or narrowly elliptic, toothed, and hairless

C. Flowers: Composite, blue to purple, disk, several on a leafy-bracted stalk

Habitat: Beaches, meadows, streambanks, moist clearings

Photo credits: A. Dana Visalli, B. G.D. Carr and C. C.J. Antieau

Gumweed *(Grindelia integrifolia)*

A. Plant: Perennial herb, stout branched stem-base, stems leafy and hairy

B. Leaves: mostly alternate, petiolate, the toothed to pinnately dissected, stalkless

C. Flowers: Large ‘sunflower like’ flowers, sticky glandular, yellow disk flower, green tips

Habitat: Beaches, salt marshes, mostly maritime habitats

Photo credits: A. and B. Dana Visalli C. Brian Luther

Purple Leaved Willowherb *(Epilobium ciliatum)*

A. Plant: Perennial, simple below and freely-branched above, puberulent, glandular above

B. Leaves: Inflorescence of racemes terminal on the branches, purplish, notched

C. Flowers: Large ‘sunflower like’ flowers, sticky glandular, yellow disk flower, green tips

Habitat: Moist soil from lowlands to middle elevations

Photo credits: A. and B. G.D Carr C. Richard Old

Pacific Silverweed *(Potentilla anserina)*

A. Plant: Perennial, usually low growing ‘strawberry like’

B. Leaves: Underside leaves are wooly and silver in color, basal, compound, pinnate

C. Flowers: Yellow, small, glossy, oval petals, ‘buttercup like’,

Habitat: Marsh edges, stream sides, beaches, dunes

Photo credits: A. and B. Ben Legler C. G.D. Carr

Orache (*Atriplex petula*)

A. Plant: Annual, covered in a whitish/mealy substance when young, hairless with age, upright stems, branched, leafy

B. Leaves: Lanced shaped to linear or oblong, rounded to arrowhead, lower leaves opposite, upper alternate

C. Flowers: Greenish purple, tiny, spikes at the end of branches

Habitat: Saline soils

Photo credits: A. B. and C. G.D. Carr C.

Montia (*Montia Linearis*)

A. Plant: Annual, stems ascend to erect, several or sometimes single, branched or unbranched from base

B. Leaves: Alternate, linear

C. Flowers: White, one sided clusters

Habitat: Moist to dry, sandy to rocky

Photo credits: A. B. and C. Ben Legler

Saltmarsh Sandspurry (*Spergularia salina*)

A. Plant: Annual, succulent, multi ascending erect stems

B. Leaves: Fleshy, crowded, opposite, blunt or pointed at tip

C. Flowers: White to deep pink, abundant, sepals as long or shorter than petals

Habitat: Saline or brackish areas along coast and alkaline areas inland

Photo credits: A. and B. Ben Legler C. Richard Old

Canada Sandspurry (*Spergularia canadensis)*

A. Plant: Annual, succulent, sprawling, leafy stems, clumped

B. Leaves: Fleshy, crowded, opposite, blunt or pointed at tip

C. Flowers: Whitish, abundant, sepals as long or longer than petals

Habitat: Sea beaches, tidal marshes, mudflats, brackish soil

Photo credits: A. B. and C. G.D. Carr

Fleshy Jaumea (*Jaumea carnosa*)

A. Plant: Perennial, succulent-like, stems weak, often almost flat on the ground

B. Leaves: Leaves linear to narrowly oblong, rounded tips, fused to stems

C. Flowers: Yellow flower heads small, deciduous, fleshy, usually purplish bracts

Habitat: Tidal flats and marshe.

Photo credits: A. B. and C. G.D. Carr

Seabeach Sandwort *(Honkenya peploides)*

A. Plant: Perennial, glabrous, mat-forming, yellowish-green, fleshy, trailing stems

B. Leaves: Leaves lanceolate to ovate, broad, smaller on the axillary branches.

C. Flowers: Greenish, inconspicuous, single in the leaf axils or stem branches, white petals

Habitat: Coastal beaches, strands, and sand dunes.

Photo credits: A. Ben Legler B. Jim Riley C. Donovan Tracy

American Sea-rocket *(Cakile edentula)*

A. Plant: Annual, glabrous, fleshy, , stems freely-branched, decumbent at base

B. Leaves: Alternate, deeply scalloped to wavy- serrate, narrowed to a broad petiole

C. Flowers: White to purplish-tinge, long-clawed, several in short clusters

Habitat: Marine water shorelines in sand or gravel.

Photo credits: A. Ben Legler B. and C. G.D. Carr

Sea Milkwort *(Lysimachia maritima)*

A. Plant: Perennial, hairless, fleshy, stems leafy

B. Leaves: Opposite low on stem, alternate above, oval to oblong, rounded at tip, stalkless

C. Flowers: White or pinkish, cup-shaped, single and stalkless in leaf axils

Habitat: Tideflats, salt marshes, sea beaches

Photo credits: A. Fred Weinmann B. and C. G.D. Carr

Sea Plantain *(Plantago maritima)*

A. Plant: Perennial, slightly wooly at crown, flowering stems slightly longer than leaves

B. Leaves: All basal, fleshy long linear, mostly hairless

C. Flowers: Small greenish-brown, inconspicuous, dense spikes

Habitat: Salt marshes, rocky shores, and beaches

Photo credits: A. Ben Legler B. G.D. Carr C. Paul Slitcher

Ribwort *(Plantago lanceolata)*

A. Plant: Perennial, short, stout, woody base, tan-woolly at the crown, the several scapes, grooved and rigid

B. Leaves: Leaves all basal, woolly to glabrous, lance-elliptic, acute

C. Flowers: Dense, bracteate, cylindric spike

Habitat: Roadsides, fields and other disturbed, open areas

Photo credits: A. Harry Thomas B. Ron Bockelman C. Roger T. George

Seaside Arrowgrass *(Triglochin maritima)*

A. Plant: Perennial, hairless, fleshy, forms large clumps

B. Leaves: All basal, upright to spreading, half round to flattened

C. Flowers: Compact racemes extending half the length of the plant, tiny green to purplish flowers

Habitat: Tidal marshes and mudflats, brackish meadows, sloughs

Photo credits: A. Clayton J. Antieau B. Jim Riley and C. G.D. Carr

Baltic Rush *(Juncus balticus)*

A. Plant: Perennial, long slender tepals, teret stems, smooth, thick at base

B. Leaves: Basal sheaths bladeless or with a ‘bristle like’ blade

C. Flowers: Clustered,, lateral inflorescence, sharp pointed, perianth greenish to dark brown

Habitat: fresh and saltwater wetlands

Photo credits: A. Thayne Tuason B. Ron Bockelman and C. Robert L. Carr

Saltmeadow Rush *(Juncus gerardii)*

A. Plant: Perennial, 6 segments, anthers much longer than the filaments

B. Leaves: Flat blades, alternate leaves, sheathing bases, mid length of flowering stem

C. Flowers: Inflorescence many-flowered, loosely cymose, dark brown with a greenish mid-stripe, blunt, hooded at tip

Habitat: Coastal salt marshes

Photo credits: A. and B. Fred Weinmann

Needle Spikerush *(Eleocharis acicularis)*

A. Plant: Perennial, grass-like stems, stems oval at cross section, arises singly or in clusters from long rhizomes

B. Leaves: All basal and reduced tp mere sheaths

C. Flowers: Single terminal spikelet, long, brown, lance to egg shaped

Habitat: Marshes, muddy shores, and other wet places

Photo credits: A. Ben Legler B. G.D. Carr and C. Richard Old

Seacoast Bulrush *(Bolboschoenus maritimus)*

A. Plant: Perennial, heavily rhizomatous, tall and forms dense stands

B. Leaves: Well developed, elongated, flat

C. Flowers: Several to many spikelets aggregated in head-like terminal cluster cradled by leaf-like bracts

Habitat: Salt marshes, wet meadows, especially in alkaline or saline areas

Photo credits: A. B. and C. Ben Legler

Hardstem Bulrush (Schoenoplectus acutus)

A. Plant: Herbaceous perennials from rhizomes, thick at base, stout

B. Leaves: Few, toward the base of the culm, with well-developed sheath and short blade

C. Flowers: Clustered spikelets, spikelets dull gray-brown

Habitat: Pond and lake margins, wetland and riparian

Photo credits: A. Fred Weinmann B. Ben Legler and Robert L. Carr

American Bulrush *(Schoenoplectus americanus)*

A. Plant: Perennial, stems single or in small groups, sharly triangular, erect

B. Leaves: Firm, long, strongly folded/channelled, sometimes flat, narrow

C. Flowers: Seedlike, pointy tipped achenes, lens-shaped, scales are brown to blackish purple

Habitat: Fresh and brackish marshes, shores, wet meadows, ditches

Photo credits: A. B. and C. Bud Kovalchik

Lyngbye Sedge *(Carex lyngbyei)*

A. Plant: Stems single or in clumps, purplish-brown at base, non-shreddy

B. Leaves: Reddish-brown sheaths, conspicuous old leaves, flat, margins rolled under, wide, abruptly pointed

C. Flowers: Spikes on all stalks, lowest bract is ‘leaf-like’

Habitat: Tidal marshes and flats, estuarine meadows, gravel or pebble beaches

Photo credits: A. Sean Patrick B. Fred Weinmann and C. Clayton J. Antieau

Western Lilaeopsis *(Lilaeopis occidentalis)*

A. Plant: Perennial herb, small, erect stem lacking

B. Leaves: Narrow, hollow tubes, 5-11 partitions

C. Flowers: White inconspicuous, loose clusters on pedicels, fleshy at base

Habitat: Coastal marshes and saltwater tideflats; maritime

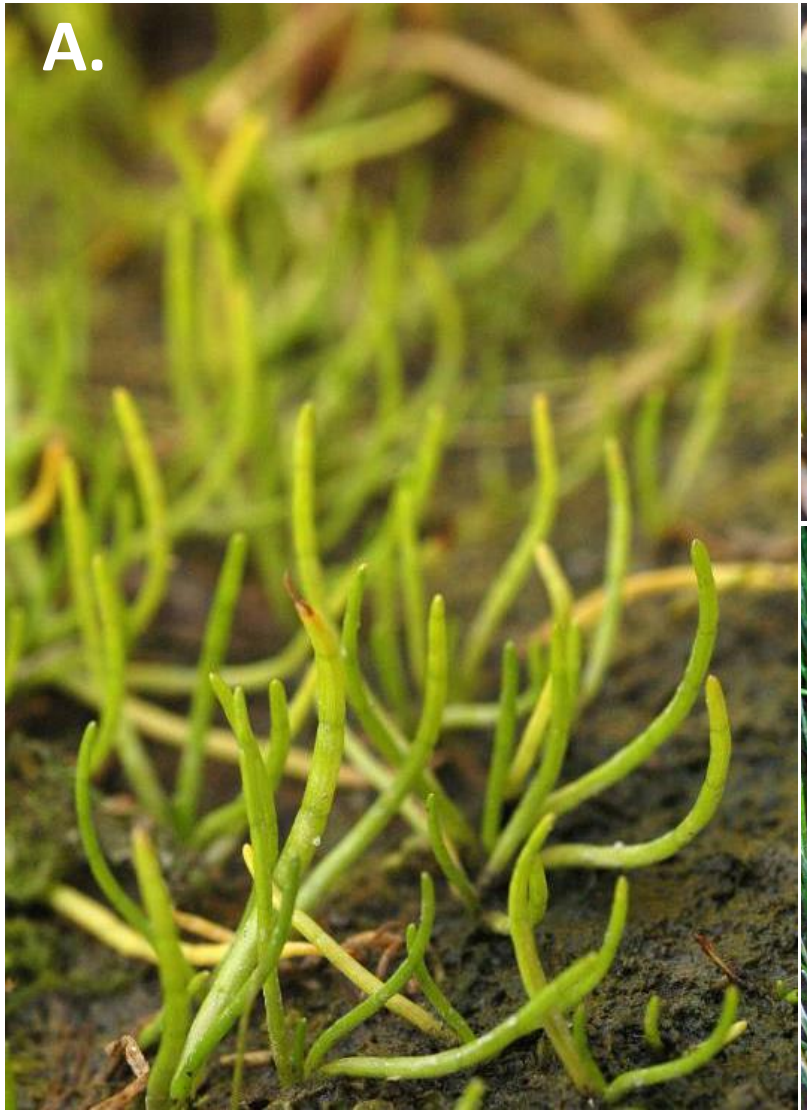


Photo credits: A. Ben Legler B. G.D. Carr and C. Fred Weinmann

Saltmarsh Dodder *(Cuscuta pacifica)*

A. Plant: Perennial herb, parasitic, twinning; slender, orange, pinkish-yellow to white glabrous stems, often forming large mats.

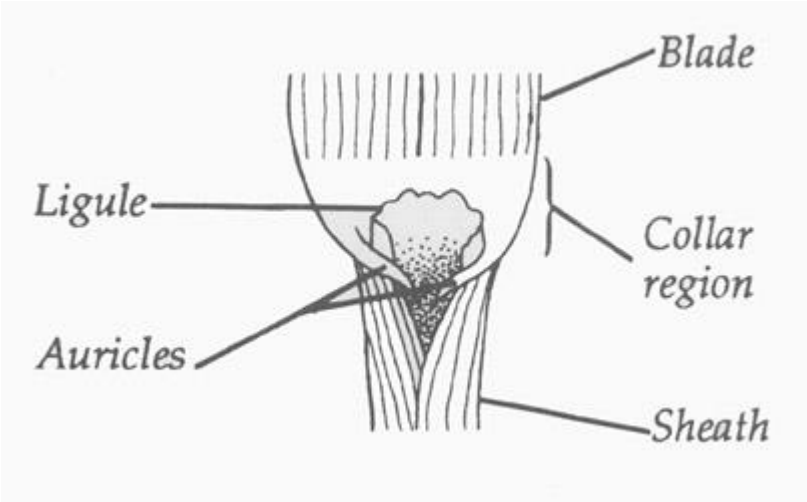
B. Leaves: Reduced to tiny scales

C. Flowers: Whitish cream or yellow, small, fused, fleshy, stalkless, clustered

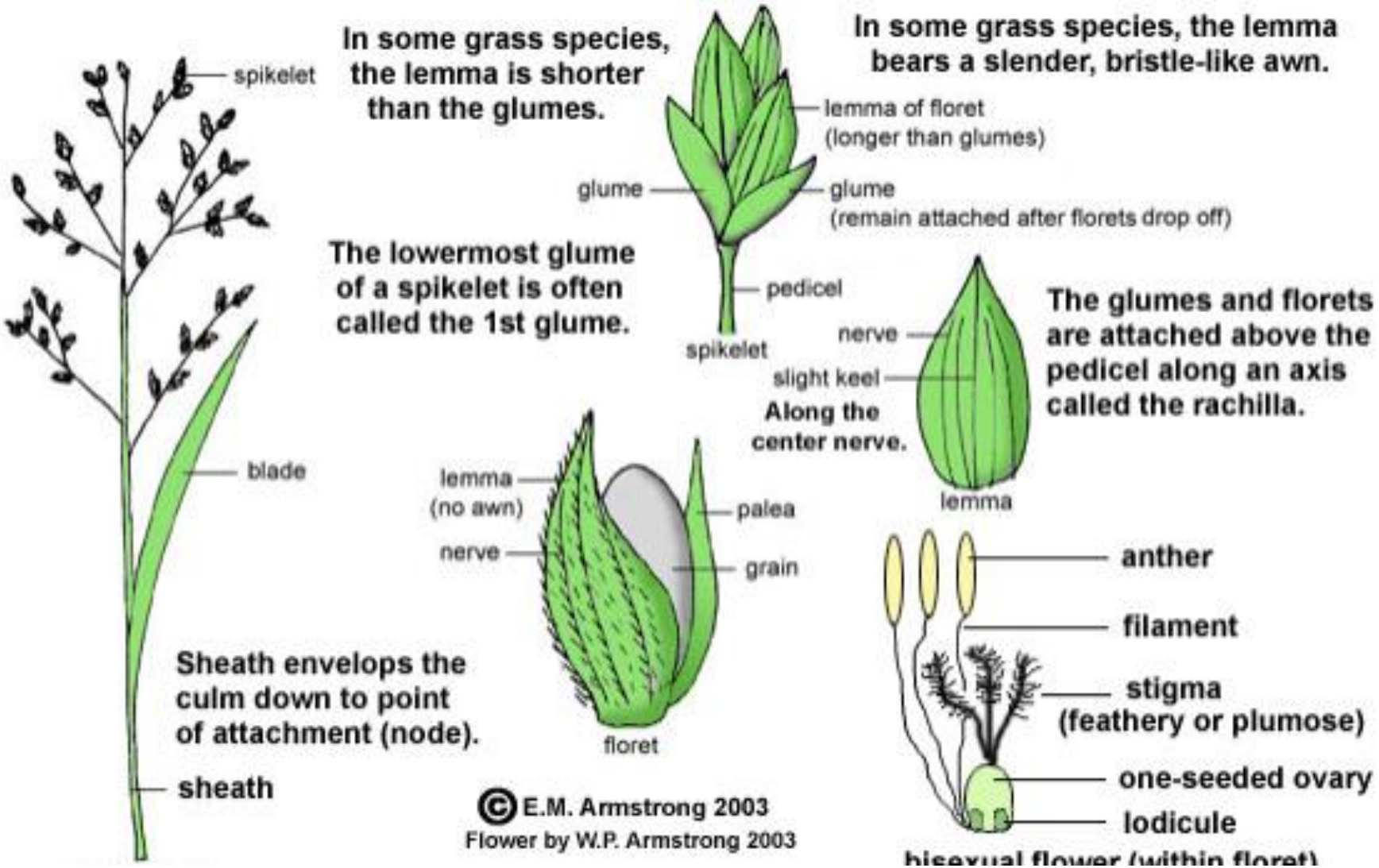
Habitat: Coastal marshes and saltwater tideflats, parasitic

Photo credits: A. Dana Visalli B. G.D. Carr and C. Regina Johnson

Grass Terminology:



Awns:



Meadow Barley *(Hordeum brachyantherum)*

A. Plant: Perennial, tuft, erect but bent at base

B. Leaves: Reddish-brown sheaths, hairless to spreading hairy, no auricles, short ligules, frilly at tip

C. Flowers: Spike, usually erect, brittle, glumes slender and ‘awn-like’

Habitat: Ocean beaches to mountain meadows, usually where moist

Photo credits: A. and B. Fred Weinmann and C. Robert L. Carr

Dunegrass *(Leymus mollis)*

A. Plant: Perennial, thick rhizomes, forms large clumps, tall, usually finely hairy above

B. Leaves: Sheaths open, glabrous, auricles developed on some leaves, very short, tough blades, flat

C. Flowers: Spike, stout, erect, glumes and lummas are soft-hairy

Habitat: Coastal sand dunes, marshes, headlands

Photo credits: A. Fred Weinmann B. G.D. Carr and C. Clayton J. Antieau

European Beachgrass *(Ammophila arenaria)*

A. Plant: Perennial, aggressively tall, connected by tough rhizomes

B. Leaves: Sheaths open smooth, narrow, inrolled, long, stiff, no auricles, sharp pointed

C. Flowers: Dense and spike-like panicle shorter than the glumes, crowded spikelets

Habitat: Beaches and dunes

Photo credits: A. Ben Legler B. G.D. Carr and C. Richard Old

Tufted Hair Grass *(Deschampsia caespitosa)*

A. Plant: Perennial, densely tufted, numerous stems

B. Leaves: Flat to folded, narrow, stiff, prominent ligules, golden hue in the late summer and early fall

C. Flowers: Panicle, open loose, often nodding, spikelets are bronze and glistening, hairy at base, darken with age

Habitat: Common in moist areas from sea level to alpine

Photo credits: A. G.D. Carr B. Craig Althen and C. Clayton J. Antieau

Seashore Saltgrass *(Distichilis spicata)*

A. Plant: Perennial, sod-forming, solid stems and vigorous

B. Leaves: Bilateral symmetry, yellowish-green, short, stiff and erect, persistent old leaves, no auricles

C. Flowers: Panicles are robust and flower bearing; florets are compressed with tightly packed lemmas

Habitat: Coastal beaches and salt marshes

Photo credits: A. Fred Weinmann B.Robert L. Carr and C. Richard Old

Redtop *(Agrostis gigantea)*

A. Plant: Perennial, coarse dense turf, stems are slender, erect

B. Leaves: Sheathes open, narrow, sharp, flat or folded

C. Flowers: Open pinnacle, pyramidal, reddish purple

Habitat: Disturbed sites, roadsides, edge of agricultural fields, dry fields

Photo credits: Fred Weinmann B. and C. Richard Old

References:

Giblin, D.E. & B.S. Legler (eds.). 2003+. WTU Image Collection Web Site: Vascular Plants, MacroFungi, & Lichenized Fungi of Washington State. University of Washington Herbarium. Accessed 09 Sep 2020. http://biology.burke.washington.edu/herbarium/imagecollection.php.

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