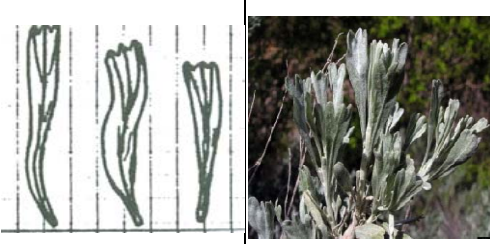
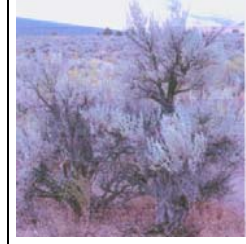
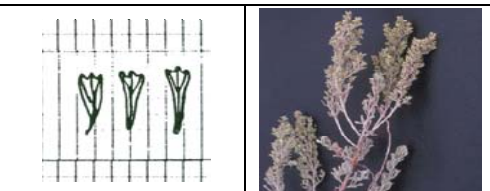

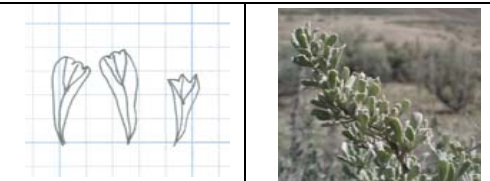

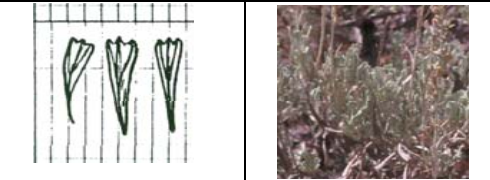





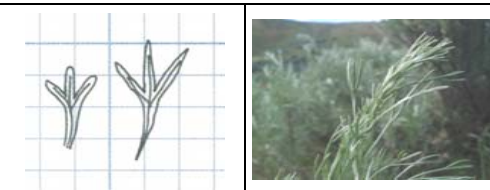



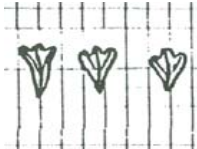



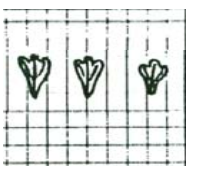
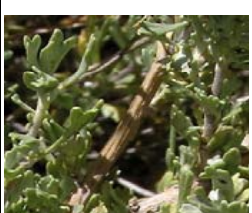


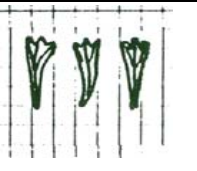







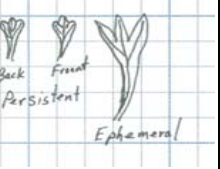



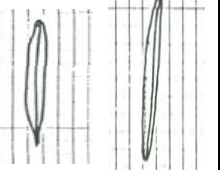





Sagebrush Identification Table For Use With Black Light

For Use in the Inter-Great Basin Area

Plant Nomenclature	Fluoresces Under Ultraviolet Light		Leaf shape and size	Plant Growth Form	Branching Pattern	Environment	Mature Plant Height	Comments		
	Water	Alcohol								
Basin Big Sagebrush <i>Artemisia tridentata</i> subsp. <i>tridentata</i> (ARTRT)	Colorless to Very Pale blue Rarely pale Brownish-red	Brownish to Reddish-Brown to colorless	Leaves 3/4 - 1 1/4 in. long; long narrow; Leaf will normally be 4 times longer than it is at its widest point; Leaf margins not extending outward; Crushed leaves have a strong turpentine smell		Uneven topped; Floral stems growing throughout the crown		"V"ed branching/ upright	Mesic to Frigid Xeric to Ustic 4000 to 8000 ft.	3.5 ft. to greater than 8 ft.	Uneven topped; Main stem is undivided and trunk-like at base;. Located normally in drainage bottoms; Small concave areas and valley floors, but always on deep Non-saline Non-calcareous soils. Vegetative leader is greater than 1/2 the length of the flower stalk from the same single branch. In Basin there are two growth forms: One the Typical tall form (Diploid); Two a shorter form that looks similar to Wyoming sagebrush if you do not look for the trunk (around 1 inch or so); the branching pattern; and the seedhead to vegetative leader characteristics (Tetraploid).
Wyoming Big Sagebrush <i>Artemisia tridentata</i> subsp. <i>wyomingensis</i> (ARTRW8)	Colorless to Very Pale blue	Colorless to pale brownish-red	Leaves 1/2 - 3/4 inches long; Leaf margins curved outward. Crushed leaves have a turpentine smell.		Uneven topped; Floral stems growing throughout the crown		Spreading/ upright	Mesic to Frigid Xeric to Ustic 4500 to 5500 ft.	Up to 4 ft.	Uneven topped; Main stem is usually divided at ground level. Plants will often keep the last years seed stalks into the following fall. Located normally in the lower half of the upland and through-out the semi-desert zones. Soils can be mildly alkaline.
Bonneville Big Sagebrush <i>Artemisia tridentata</i> subsp. " <i>X. bonnevillensis</i> "	Blue to Intense Blue can be a creamy-blue	Colorless to weak brownish-red	Leaves 1/2 - 2/3 in. long; Leaf margins curved outward. Crushed leaves have a weak mint-ish smell.		Uneven but with even seed heads		Spreading/ upright	Mesic to Frigid Xeric 5000 to 7000 ft.	Up to 4 ft.	Uneven topped; Flower stalks extending noticeably above the top of the plant; Main stem is usually divided at ground level;. Located normally in the upper half of the upland zones (Normally 12 inches effective precipitation and up).
Mountain Big Sagebrush <i>Artemisia tridentata</i> subsp. <i>vaseyana</i> (pauciflora) (ARTRV)	Intense blue to Creamy-blue	Creamy-blue	Leaves 3/4 - 1 in. long; Leaf margins curved outward; Crushed leaves have a mint-ish smell.		Even		Spreading/ some-what upright	Frigid Xeric to Ustic 5200 to 8600 ft. Can rarely be Mesic	Up to 4 ft.	Even topped; Flower stalks extending noticeably above the top of the plant; Main stem divided at ground level. There are two types of mountain big sagebrush. Mountain sagebrush is located in the mountain zone. Very rarely in the High Mountain Zone. Subsp. <i>pauciflora</i> (Mountain sagebrush) will not layer nor sprout and has 6 or less flowers per floret.
High Mt. Big Sagebrush <i>Artemisia tridentata</i> subsp. <i>vaseyana</i> (ARTRV)	Intense blue to Creamy-blue	Creamy-blue	Leaves 3/4 - 1 in. long; Leaf margins curved outward; Crushed leaves have a mint-ish smell.		Even		Spreading/ some-what upright	Frigid to Cryic Mainly Udic sometimes Xeric to Ustic 6000 to 9000 ft.	Up to 4 ft.	Even topped; Flower stalks extending noticeably above the top of the plant; Main stem divided at ground level. High Mountain sagebrush is located in the High Mountain Zone. Very rarely found in the Mountain Zone. Subsp. <i>vaseyana</i> (High Mountain sagebrush) will layer limitedly but never sprout and has 7 or more flowers per floret.
Subalpine Big Sagebrush <i>Artemisia tridentata</i> <i>spiciformis</i> (ARTRS2)	Intense blue to Creamy-blue	Creamy-blue	Leaves 1 to 1 1/2 in. long. Leaf margins curved outward; Ephemeral leaves sometimes have entire margins. Crushed leaves have a fresh mint-ish smell.		Even		Spreading; Layering and Sprouting	Cryic to rarely frigid Mainly Udic, rarely Xeric to Ustic 7500 to 9400 ft.	Up to 4 ft. Normally around 3 ft.	Raggedly even topped; Flower stalks extending noticeably above the top of the plant; Branches layer producing roots wherever branches contact the ground for any extended period of time. Main stem divided at ground level. Located in the high mountain zone. Found on clayey to silty-clay loam soils. Can back-cross with Silver sage causing production of some entire leaves. Plant will sprout from damaged crowns and bases of branches.
Three Tip Sagebrush <i>Artemisia tripartita</i> (ARTR4)	Blue to Pale Blue	Brownish-Red to Colorless	Leaves 1/2 - 1 in. long; Leaf very deeply lobed and have a feathery look. Crushed leaves have a weak mint-ish smell.		Uneven but can appear Even		Spreading Layering Stump and root sprouting	Mesic to Frigid Xeric 4800 to 7000 ft.	2 to 3 ft.	Plants spread by seeds; layering stump and root sprouts. Plants tend to grow in patches with older plants in the middle. Grows in moderately deep to deep soils and in gravelly to loamy soils. This plant will replace Bonneville sagebrush if the site burns often enough. This plant will at times have a seed head apperanc similar to Subalpine Big Sagebrush.
Bigelow Sagebrush <i>Artemisia bigelovii</i> (ARB13)	Pale Cremish Blue to Pale blue to rarely colorless	Brownish-Red to Colorless (The Brownish-red color may have an interesting Yellowish cast)	Leaves are 0.6 to 1 in. long. Leaves are not bucktoothed but can appear to be on casual observation.		Even		Spreading	Mesic Aridic to Xeric 4200 to 5000 ft.	0.75 to 2.0 ft.	Readily identified by morphological characteristics and/or geographic location. Grows on shallow soils derived from limestone and sometimes sandstone

Plant Nomenclature	Fluoresces Under Ultraviolet Light		Leaf shape and size	Plant Growth Form	Branching Pattern	Environment	Mature Plant Height	Comments		
	Water	Alcohol								
Black Sagebrush <i>(Gray Leaf) Artemisia nova (ARNO4)</i>	Colorless (Greenish) to Pale Blue	Brownish-Red	Leaves 3/8 to 1/2 in. long rarely slightly longer; having glandular dots. Dots sometimes difficult to see due to pubescent on leaves. Leaves on flowering stalk entire & persistent. Mild Turpentine smell.	 	Even	 	Spreading	Mesic to Frigid Xeric to Ustic 4500 to 8000 ft.	0.75 to 1.25 ft.	Occurs on shallow (or soils that act shallow to root growth) Calcareous soils. Flowers usually in groups of three or more and normally on short slender peduncles. Flower stalks arising from the outside layer of the crown.
Black Sagebrush <i>(Green Leaf) Artemisia nova (ARNO4)</i>	Colorless to very pale blue	Brownish-Red	Leaves 3/8 to 1/2 in. long rarely longer; having glandular dots. Leaves sticky when crushed. Leaves on flowering stalk entire & persistent. Strong Turpentine smell.	 	Even	 	Spreading	Mesic to Frigid Xeric to Ustic 4500 to 8000 ft.	0.75 to 1.75 ft.	Occurs on shallow (or soils that act shallow to root growth) Calcareous soils. Flowers usually in groups of three or more and normally on short slender peduncles. Flower stalks arising from the outside layer of the crown.
Low Sagebrush <i>Artemisia arbuscula subsp. arbuscula (ARARA)</i>	Intense blue to Creamy-blue	Creamy-blue	Leaves 1/2 to 1 in. long. Leaves on flowering stalks early-deciduous & mostly lobed. Crushed leaves have a mint-ish smell.	 	Uneven	 	Spreading	Frigid to Rarely Mesic, to Rarely Cryic Xeric to Ustic 5500 to 8200 ft.	0.75 to 1.5 ft.	Occurs on shallow (or soils that act shallow to root growth) non-calcareous soils. Flowers usually single (rarely 2 - 4) and are usually sessile especially at the top of the flower stocks.
Little Sagebrush <i>Artemisia arbuscula subsp. thermopola (ARART)</i>	Intense blue to Creamy-blue	Pale Blue to Creamy-blue	Leaves 1/2 to 6/8 in. long. Ephemeral leaves persistent into late summer. Leaves on flower stocks are early-deciduous & deeply cleaved. Crushed leaves have a mint-ish smell.	 	Uneven to slightly Even appearing	 	Spreading	Frigid to Cryic Ustic 7000 to 8500 ft.	0.75 to 1.5 ft.	Occurs on shallow (or soils that act shallow to root growth) non-calcareous igneous soils (Quartzite parent material.) This form occurs only at high elevations. Flowers usually single (rarely 2 - 4) and are usually sessile especially at the top of the flower stocks.
Early Sagebrush Alkali Sagebrush <i>Artemisia arbuscula subsp. longiloba (ARARL)</i>	Creamy-blue	Creamy-blue	There are two types of leaves: Type 1: Persistent leaves (0.5 to 0.7 inch) long; buck toothed. Type 2: Ephemeral leaves (0.7 to 1 inch) long and more silverish in appearance; deeply lobed.	 	Uneven	 	Spreading	Frigid to Mesic Xeric 4500 to 8000 ft.	0.75 to 2.0 ft.	Frequently layers where branches come in contact with the ground; Flowers in May and/or June whereas the other sagebrushes flower in the fall; There are two types recognized: Type 1 is a short shrub (0.6 to 1.0 ft.) Type 2 is a medium shrub (1.5 to 2 ft.) . Type 1 occurs in poorly drained or tight alkaline soils. Type 2 occurs on moderately drained alkaline soils
Mountain Silver Sagebrush <i>Artemisia cana subsp. viscidula</i>	Very Pale blue to Colorless	Brownish-Red	Leaves 1/4 to 1.0 inches long. Leaves deciduous. Crushed leaves smell like turpentine and sticky feeling.	 	Uneven	 	Spreading	Frigid to Mesic Xeric 6000 to 9200 ft.	0.75 to 4.0 ft.	Root sprouts; Grows in deep loam soils along mountain streams and in heavy and/or very deep snow pack areas. . Note: If Bolanderi Silver Sagebrush is ever encountered the newer stems and the leaves will be extremely Pubescent.

Need three or more of the characteristics to match to be sure of the species Id.

Note: material placed in Water needs to set for 3 to 4 minutes & material placed in Alcohol needs to set for 15 to 20 minutes before being analyzed under the Black Light.

Intensity of florecent color will vary according to season of year. Ephemeral leaves will make the colors more brilliant; Times of heavy rain and/or wet snow will reduce the intensity of the colors.

Note: Material placed in water and alcohol will often fade with time (if left in solution for over 4 days) and may be misleading in some species of sagebrush. Short wave length Black lights will not work. Need a 3660 angstrom light.