

ETHNOBOTANY: PEOPLE AND PLANTS

Immigrant Uses of Plants: Native and Introduced

A Brief History of Introduced Plant Species in Utah

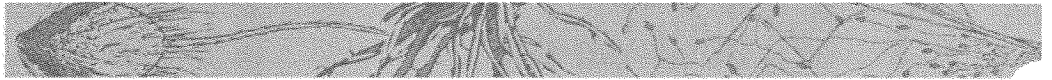
The way people interacted with plants, cultivating rather than gathering, began to change their lifestyle from a nomadic hunting and gathering one to one based in agriculture about 10,000 years ago. The need for caring for the plants began to create small communities, which eventually became larger cities and townships.

There was a rich history of trade between the indigenous people of the North and South American continents, which included the introduction of many different, non-native plant species or cultivated varieties. Sometime in the 1500s, *Zea mays* (corn) was introduced into Utah's environment. Various tribes cultivated this plant over the years until it began to resemble more closely the corn we eat today.

Spanish explorers came to the region to claim territories for their homeland or for the purpose of mapping the land and documenting routes and wildlife rather than to cultivate the land. The Canadian, English and French trappers that followed were here briefly, not intent on settling the area either. The plants that were brought by these groups were probably more accidental than intentional (hitchhiking on animals and travel equipment). Many of the plants brought from Eurasia are not specifically traceable to any one group or event for the most part. You can see from the list of plants that are problematic to us now, many are from these areas of the world. Most likely these groups relied on native plants to provide their food, medicinal and shelter needs and were unaware that they were dropping seeds that might later become problematic.

The expeditions from the 1700s to the 1800s, led by Rivera, Escalante/Dominguez, John C. Fremont, and John Wesley Powell, among others, were here only for short periods for the purpose of fact-finding, mapping and recording of the flora and fauna of the area, rather than as settlers. The information on plants, animals and geography they documented on their expeditions is invaluable to us today.

The Mormon pioneers were the largest group of European and American settlers to arrive in Utah. Since they came to make a home here, they brought as many comforts from home as was practical, which included various seeds for cultivation. They were very self-sufficient, but



made friends with various Native American groups and exchanged plant uses with them, acquiring knowledge of the rich abundance of native plant resources available to them.

With the coming of the Transcontinental Railroad in the mid-1800s and the through traffic en route to California's Gold Rush, diverse groups, such as Greek, Hispanic, Japanese, and African-Americans, also began to make Utah their home, many of them railroad workers or miners. It is difficult to document which specific plants were brought at which times, but the following lists will give a general idea of cultivars that have endured and remained relatively problem-free, and the introduced plants that have been placed on the noxious or harmful weed lists.

Introduced Plants

Cultivars or Beneficial Plants

Corn (*Zea mays*): introduced from Mexico to Native Americans; later became a staple of many diets.

Squash (*Cucurbita* spp.) - many varieties, one of the staples of the Native American diet, later adopted by the immigrants.

Beans: introduced to area before immigrant era; later adopted by settlers.

Prunus species: Many varieties of fruit trees were imported mainly from China, Eurasia, and Africa during the colonization of America. They made their way across the country to Utah as the settlers moved west.

Noxious or Harmful Plants

Often plants were imported with good intentions: dyer's woad was used to dye textiles and fabrics, tamarisk was planted along stream banks to control erosion, and the horticulture trade helped to bring many ornamentals for gardens. Many introduced species do no harm, but there are some that have become problematic.

As these plants did not evolve in our ecosystems, they often don't have the natural checks and balances on their populations that native plants do such as predators and diseases. Non-native plants also have the benefit of having evolved adaptations in their native environments that our native plants have not had the time to evolve. One of the main adaptations non-native plants have at their disposal is allelopathy. Allelopathy is the inhibition of one plant by another. This is when one plant manufactures or concentrates chemicals that are damaging to other plants and then releases those chemicals into the environment. Once introduced, these non-native plants can outcompete native plants, reducing or removing native plant populations in an ecosystem. This creates a domino effect, damaging the populations of other plants and animals that rely on the native plants.

Managing these non-native plants can be extremely difficult as they are often widespread. Many techniques that would remove or lessen the population of the non-natives would also damage the native plant populations.



Examples of Negative Impacts

Verbascum thapsus (mullein): This plant was introduced very early from Eurasia; later adopted by Native Americans. It can overtake areas quickly, especially meadows and forest openings, while being extremely difficult to eradicate.

Linaria vulgaris (yellow toadflax): Brought here from Europe's Mediterranean region. It was originally brought as an ornamental to North America in 1874. This plant's roots grow deep and it produces new shoots earlier in the season than native plants, limiting resources and crowding out other plants. The animal life associated with native plants is also displaced by this plant. When it displaces grasses, there is an increase in erosion, and surface runoff.

Isatis tinctoria (dyer's woad): Brought to dye textiles from Eurasia, it's allelopathic properties inhibit the growth of other plants around it and portions of the seeds from one plant are genetically programmed to germinate every year over the next seven years.

Hypericum perforatum (St. Johnswort): Introduced from Europe as both an ornamental and a medicinal plant, this plant is avoided by native grazing animals giving it a competitive advantage over native plants. It is very difficult to remove as it has extensive root systems that will grow new plants if not completely removed.

Cynodon dactylon (bermudagrass): Introduced as a garden planting or turf grass from Africa, this plant is strongly allelopathic and is able to overtake native plants quickly, especially after floods. A threat to crop production and turf management.

Tamarisk spp. (tamarisk): This Eurasian native was introduced in Utah as a windbreak, for shade, and as an ornamental shrub. Pioneers planted it along stream banks to prevent erosion. Because the seeds are wind and waterborne, it spreads quickly, choking out native species such as willow and cottonwoods. It has created a loss of native habitat and food source for wildlife and chokes the water systems.

Cynoglossum officinale (houndstongue): This is a Eurasian native that was probably introduced through contaminated cereal seed in the 1800s or by accidental seed dispersal due to it's Velcro like attachment to cloth. This plant is able to outcompete natives with its effective seed dispersal, low growth habit that is ignored by grazers and a deep root system that allows for greater resource allocation.

Convolvulus arvensis (field bindweed): also a Eurasian native, was believed to have been mixed in with some farm and garden seeds that were imported to the eastern United States. It vines around plants and chokes out plants in its growth area. Roots go deep and the plant can go dormant until conditions are optimal for its growth. It has spread over the entire U.S., and is now considered to be one of the 10 most serious weeds in the world.

Cirsium arvense (Canada thistle): This native of southeastern Europe and the eastern Mediterranean area was probably introduced to North America in the 1600s as a contaminant of crop seed and/or from a ship's ballast. Considered one of the worst invasive weeds worldwide, it spreads quickly in disturbed areas and creates dense stands that shade out native plants. Its extensive root systems make it difficult to eradicate.

Bromus tectorum (cheatgrass): Probably introduced to the United States as a contaminant in hay or straw and cereal crops. It germinates in the fall, getting a head start over native forbs and grasses. In the spring, it then uses abundant soil moisture to grow quickly and crowd out native species.

Agropyron repens (crabgrass): This plant was probably introduced to the United States as a contaminant in hay or straw and cereal crops. Its extensive root system dries out the soil and crowds out native species.

Immigrant Uses of Various Native Plants

Agave utahensis (Utah agave): Alcoholic beverages made from varieties of agave; tonic for upset stomach.

Asclepias spp. (milkweed): Milky sap to cure warts.

Ephedra viridis & *Ephedra nevadensis* (Mormon tea): An energizing tea that can also be used for treating rheumatism and arthritis.

Equisetum hyemale (scouring horsetail): Stems used to scrub cookware.

Populus fremontii (Fremont cottonwood): The lightweight wood was used as firewood for cooking and to heat homes.

Juniperus occidentalis (Utah juniper): Berries were used for bladder infections, to cure indigestion; hot baths in tea made of the needles were used to treat rheumatism.

Mahonia fremontii (Fremont barberry): This was used for jaundice and gallstones, diarrhea and fever.

Oenothera caespitosa (pale evening primrose): Used medicinally as a sedative and laxative, for asthma and as a cough remedy.

Pinus edulis (Pinyon pine): Needles used as an expectorant and diuretic; nuts were a good source of protein.

Populus tremuloides (quaking aspen): Bark was used as remedy for fever, rheumatism, arthritis, and colds.

(For additional uses of native plants, see *Indian and Pioneer Medicinal and Food Plants* in the Reference Books of the Botany Bin.)