

## Wild Potatoes on Public Lands of the Southwest

What do our National Parks and Forests have to do with the kind of French fries you eat for lunch? Maybe more than you think. Potatoes we eat have close relatives which can be found growing as wild plants on public lands of the Southwest. These wild potatoes may have had an impact on the lives of ancient Native Americans in the region, and may also someday play a role in the development of improved potato varieties eaten by modern-day Americans.

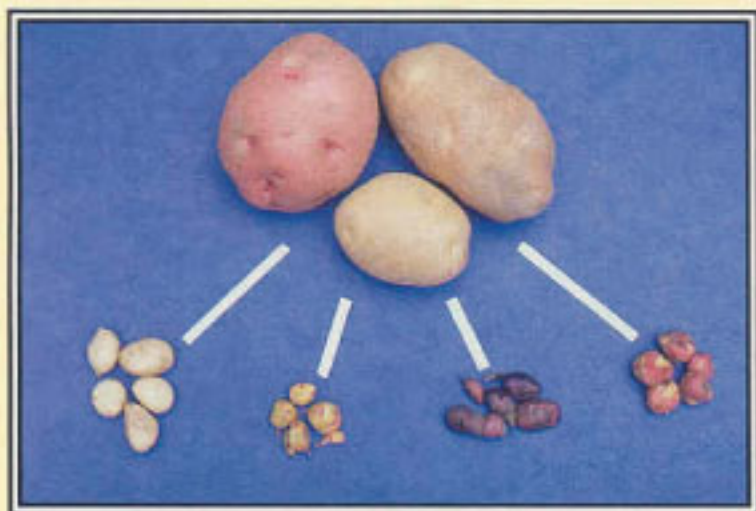


Wild potato flowers

Potato crop importance. Potato is the leading vegetable in the US and the 4th most important world crop after rice, wheat and corn. Potatoes have the capacity to produce more food per acre than any other major crop. Thus, potato may be our best bet for feeding an increasingly hungry world. Because potatoes are so nutritious and versatile, we enjoy them as a regular part of our diets. Despite its many virtues, however, the potato still needs improvement. For example, the

potato is currently susceptible to many diseases, pests and stresses that reduce quality and quantity of the crop. Even small progress could have big payoffs in worldwide nutrition. That's where wild potatoes come in.

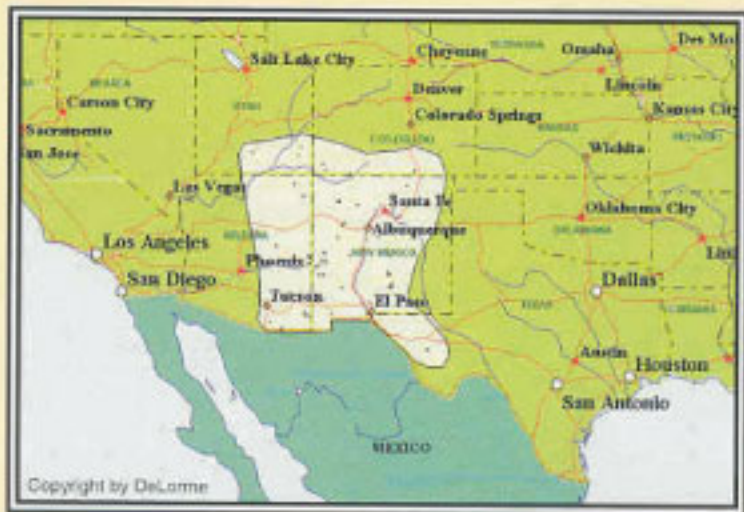
Wild potatoes. One of the best ways to improve the potato crop is by breeding better characteristics into new varieties. But in many cases, the potato species cultivated around the world (*Solanum tuberosum*) simply does not contain the traits we are looking for. Luckily, there are over 200 wild related species of potato which comprise a veritable treasure chest of genetic diversity for potentially useful traits. While there are thousands of *Solanum* species, all true potatoes are distinguished by tubers born on underground runners (stolons). Wild tubers found in the Southwest are similar to common potatoes, except that they are small (like marbles), and much more numerous.



Wild potatoes, although small, are sources of other valuable traits which can be bred into new varieties.

Species in the Southwest. While most wild potatoes grow throughout the mountainous regions of Latin America, two species are found in the US. *Solanum fendleri* is typically associated with mountains of west Texas northward into the southern half of New Mexico and Arizona. *Solanum jamesii* can be found in many of the same sites, but also occurs in

lower altitude habitats like juniper scrub and stream bottoms. This species is found farther north than *S. fendleri*, extending into southern Utah and Colorado. Populations may be widespread, but usually are small and localized, and tubers may be several feet from the mother plant. These characteristics make them less convenient as a food, but provide obvious advantages for survival in the wild.



Range of wild potatoes growing in the USA.

source. For example, the Hopi have semi-cultivated *S. jamesii* and prepared them in traditional dishes seasoned with a special clay. The Pueblo and the Zuni have eaten *S. fendleri* in a similar manner. Little is known about the interaction of ancient cultures with wild potatoes. Did the Anasazi protect and use natural colonies of these species for emergency or ceremonial food? Did their far reaching trade routes play a role in dispersing potatoes northward from their original home in Mexico?



*Solanum jamesii* grows at the Anasazi center at Chaco Culture National Historical Park, NW New Mexico.

Cultural connection. These native plants are considered to be wild—that is, not systematically cultivated by humans. However, Native Americans have certainly recognized these potatoes as a significant food



*Solanum fendleri* growing on Mt. Wrightson, Coronado National Forest, near Tucson, Arizona.

National genetic resources collections. The USDA administers a national system of genebanks for wild and cultivated relatives of important crops. The facility responsible for potato is located at Sturgeon Bay, Wisconsin. The US Potato Genebank's mission is to collect, classify, preserve and evaluate the nearly 5,000 samples of over 150 potato species currently in the national collection (which includes *S. jamesii* and *S. fendleri*), and distribute seeds to researchers worldwide. Scientists at the potato genebank are using *S. jamesii* and *fendleri* as models to determine how different factors affect genetic diversity, and how to best preserve it in the genebank and in the wild.



Collections from the wild are preserved, studied and distributed at the US Potato Genebank near Sturgeon Bay, Wisconsin.

Natural preservation important. Our National Parks and Forests play an important role in preserving native plants. In the case of potato, these wild populations may even someday provide genes for a new and improved potato variety. Thus, we must continue efforts to understand factors which might threaten genetic diversity in the wild, and devise plans to counteract them.



Alpine habitat of *Solanum fendleri* on Montjeau Lookout peak, Lincoln National Forest, near Ruidoso, New Mexico.



A small, isolated patch of *Solanum jamesii* in the Manti La Sal National Forest near Blanding, Utah.

Note: Do not remove or disturb any vegetation without permission.

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