

Potential Economic Impacts of *Cactoblastis cactorum* in the United States

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Economic impacts due to potential ecological effects of a *Cactoblastis cactorum* infestation have not been quantified to date. No attempt has been made to provide a comprehensive economic quantification of these effects.

This brief assessment provides an economic impact focus of *Cactoblastis cactorum* to prickly pear cactus in the United States and to the areas of the value of the cactus as a commodity both for human consumption and livestock forage, ornamental plant, and as a resource for wildlife and recreation. An overview of some of the social and political realities of the plant resource in the environment is provided.

A previous estimates of associated value of the U.S. cactus industry has placed it at around \$70 million per year but as you will be able to tell in the following analysis, the value of plant resource at risk could be grossly understated depending on the severity and expansiveness of an infestation of *Cactoblastis cactorum*.

The average annual growth of cactus pad imports from Mexico has been 18 percent during the period from 2000 through 2006. Estimated import value of \$38.5 million is derived from using a historical midpoint unit value \$0.55/pound (ranging from a low of \$0.35/pound = \$24.5 million to a high of \$0.63/pound = \$43.7 million).

The average annual growth of cactus fruit “tunas” from Mexico has been 14 percent during the period from 2000 through 2006. Estimated import value of \$13.2 million is derived from using a historical midpoint unit value of \$0.47/pound (ranging from a low of \$0.40/pound = \$11.3 million to a high of \$0.55/pound = \$15.5 million).

Average Annual growth in imports from 2000 to 2006 = 14%

In 2005, the U.S. Census Bureau estimated the U.S. population that was born in Mexico totaled 10.3 million out of 296.6 million or 3.5 percent. By 2020 this portion of the U.S. population born in Mexico is estimated to increase to 5.1% or 17.0 million. Based on U.S. imports of nopales from Mexico in 2006 the per capita consumption of nopales in the U.S. is 6.51 pounds. Holding the per capita consumption the growth in consumption of nopales in the United States will grow from 31,773 MT in 2006 to 50,406 MT by 2020. Assuming a constant value of \$0.55 per pound; the total import value would increase from \$40 million to \$60 million by 2020. This will promote greater commercial production of prickly pear cactus in both Mexico and the United States.

The USDA last census of horticultural specialties taken in 1998 indicate that among the 341 operations marketing cacti and succulents total sales were \$23.9 million. Half of these sales were cacti and succulent foliage potted plants with a pot diameter of 6 inches or more. These larger pot sizes would include prickly pear cactus. The states having the largest marketings of foliage plants in the cacti and succulent category was California, Arizona, and Florida.

Opuntia is important to wildlife habitat– some estimates place a 50% to 70% reduction in *Opuntia* population to have a “negative influence on most wildlife habitat in Texas”.

(Rakowitz, 1997). The wildlife species most vulnerable *Opuntia* decline include: javelina – *Opuntia* comprises as much as 85% of its diet – some populations, however, exist in areas where there are no prickly-pear cactus; experiments on captive javelina reveal that they can survive solely on a diet of prickly-pear cactus for as long as 3 months. The value of rural land for recreational / wildlife uses (e.g. hunting and wildlife watching) over agricultural use cannot be over-emphasized.

Greatest value for *Opuntia* in South Texas region as a wildlife feed for game animals – white-tail deer leases \$6 per acre, quail lease \$4 per acre compare to a lower lease price for cattle at \$3 per acre (Rakowitz, 1997). Today according to a Texas Parks and Wildlife biologist I spoke with recently in South Texas a 47,000 acre farm has hunting lease rates at \$17 to \$18 per acre.

Since prickly pear is such an important plant resource for wildlife I thought it might be interesting to look at what’s spent on hunting and wildlife watching in the United States. If *Cactoblastis cactorum* were to significantly impact these selected *Opuntia* rich states west of the 100th meridian what would be the economic impact if one assumes that the dollars spent by residences of these states were to reduce spending by 1 percent and 5 percent levels because of a reduction in the abundance of wildlife to hunt and watch resulting from a significant reduction in the prickly pear food supply.

Estimated Economic Impact from Wildlife Loss Resulting From A Decline In Prickly Pear Cactus In Selected States West of the 100th Meridian

	1% Decline	5% Decline
Texas	-\$32.2	to -\$161.0 million
California	-\$29.7	to -\$148.6 million
Arizona	-\$10.0	to -\$49.8 million
Selected Other States	-\$42.8	to -\$214.2 million
Total Selected States West of 100th Meridian	-\$114.7	to -\$573.6 million

The above loss assumes a wildlife loss from reduced prickly pear cactus results in a 1% to 5% loss in state total expenditures from resident hunting and wildlife watching using 2000 data.