Table 1. Control tactics for erect pricklypear [*Opuntia stricta* (Haw.) Haw.] infested with cactus moth (*Cactoblastis cactorum* Bergroth).

TRADE NAME	CHEMICAL NAME	RATE	NOTES
Gramoxone Max	Paraquat	0.8 fl oz per gallon water	Non-selective, Restricted-use pesticide. Add 2 teaspoons nonionic surfactant per gallon water. For best results treat between May and September and thoroughly cover cactus foliage with spray solution. Do not make more than 10 applications per year or exceed 1.6 pints Gramoxone Max per acre per year.
Grazon P+D or Tordon 101	Picloram + 2,4+D	½ gallon/A or 2% solution	Restricted-use pesticide. Herbicidal response may be slow. Add 2 teaspoons per gallon or 2 quarts per 100 gallons of spray solution of non-ionic surfactant. Mid- to late-summer applications are most effective for long term control. Avoid applications when plant foliage is wet.
Surmount	Picloram + fluroxypyr	3 to 6 pints/A or 1% solution	Restricted-use pesticide. Herbicidal response may be slow. Add 2 teaspoons per gallon or 2 quarts per 100 gallons of spray solution of non-ionic surfactant. Mid- to late-summer applications are most effective for long term control. Avoid applications when plant foliage is wet.
Tordon 22K	Picloram	1 pint/A or 1% solution	Restricted-use pesticide. Herbicidal response may be slow. Add 2 teaspoons per gallon or 2 quarts per 100 gallons of spray solution of non-ionic surfactant. Mid- to late-summer applications are most effective for long term control. Avoid applications when plant foliage is wet.
MECHANICAL CONTROL			
Hand removal			Labor intensive and slow. Avoid contact with spines.
Grazing			Burn to remove spines from pads, then introduce cattle into infested areas.

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Invasive Species Fact Sheet

Cactus Moth Host Plant

Erect pricklypear [*Opuntia stricta* (Haw.) Haw.]

Description, Distribution, and Management

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INTRODUCTION AND DISTRIBUTION

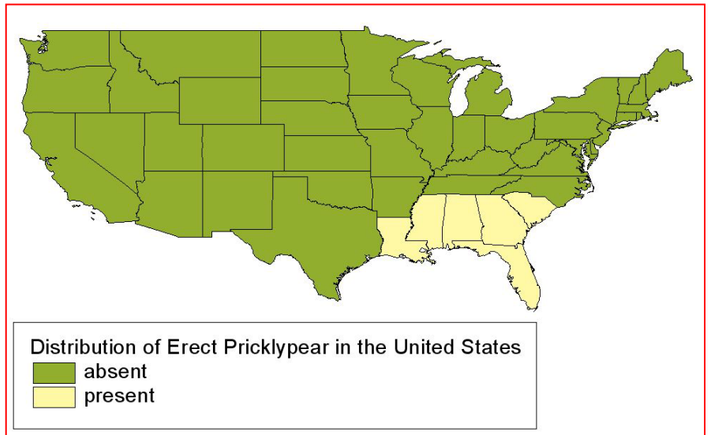

Fig. 1. Distribution of erect pricklypear [*Opuntia stricta* (Haw.) Haw.] in the U.S. Data from U.S. Department of Agriculture, Natural Resources Conservation Service.

Erect pricklypear [*Opuntia stricta* (Haw.) Haw.] belongs to the subfamily Opuntioideae in the cactus family (Cactaceae Jussieu). There are around 150 species of *Opuntia* Miller, but only about 34 in the United States. Four species are common in Mississippi. All four belong to the subgenus *Platyopuntia*. Devil's-tongue [*O. humifusa* (Raf.) Raf.], cockspur pricklypear (*O. pusilla*), and erect pricklypear [*O. stricta* (Haw.) Haw.] are native to Mississippi, while cow tongue pricklypear (*O. engelmannii* Salm-Dyck ex Engelm.) is not. Erect pricklypear is the least common of the native pricklypear in Mississippi.

There are currently two accepted varieties of Erect pricklypear: *O. stricta* var. *stricta* (Syn. *O. inermis* D.C.) and *O. stricta* var. *dillenii* (Ker-Gawl) L. [Syn. *O. dillenii* (Ker-Gawl.) Haw.]. *Opuntia stricta* var. *dillenii* apparently occur only in Florida. However, *Opuntia stricta* var. *stricta* is more widespread in the Southeastern United States and found in southern Mississippi (Figure 1).

Erect pricklypear is most frequent on dry sites, due to sandy soils or shell heaps. In Mississippi, it is found on relic shell middens and dunes of the barrier islands and adjacent mainland along the gulf coast (Figure 2). Although less common in Mississippi, it is not considered threatened or endangered. Erect pricklypear is generally found growing with cockspur pricklypear and devil's-tongue, where it occurs. It has been cultivated as an ornamental and considered a serious pest in other arid parts of the World. The World Conservation Union (IUCN) considers it one of the top 100 worst invasive alien species.

Fig. 2. Erect pricklypear (*Opuntia stricta*) on Mississippi barrier island. Photo by Victor Maddox.

Pricklypear cacti (*Opuntia* spp.) are being threatened by the accidental introduction of the cactus moth (*Cactoblastis cactorum* Bergroth) into Florida. Since introduction, it has expanded its range to Pensacola on the Gulf Coast and Charleston, South Carolina on the Atlantic Coast.
This moth, native to Argentina, has reached Alabama and may reach Mississippi within the next year. The caterpillars of this moth are capable of complete destruction of entire plants and stands of cacti. This exotic pest is expected to have a catastrophic effect on the landscape of the western states and Mexico, if its range expands beyond Louisiana.

Erect pricklypear [*Opuntia stricta* (Haw.) Haw.]

Description, Distribution, and Management

IDENTIFICATION, BIOLOGY AND ECOLOGY

Erect pricklypear is a large, clump-forming cactus and can grow to over three feet. The stems are made up of obovate to oblong, flattened segments, also called cladodes. They range from 3.5 to 6 inches long, up to 12 inches or more when elongated. The tufts of hairs, called glochids, are very short and spines may be absent. When present, there are 1 to 2 cylindrical (sometimes flattened basally) yellow spines, 0.5 to 1.5 inches long. Both glochid and spines are sharp. Unlike the spines, the glochids readily detach from the nodes and can become imbedded in the skin while handling the plant. Unlike cockspur pricklypear, stem segments of erect pricklypear do not readily detach.

Fig. 3. Erect pricklypear (*Opuntia stricta*) with flower and young fruit. Photo by Victor Maddox.

Erect pricklypear normally flowers from May to June, but can flower sporadically from August to October. Flowers are yellow and about 2.5 to 3 inches across (Figure 3). The 1.5 to 2.5 inch long berry is first green eventually ripening to purple. The berry is typically obovoid and tapered to a slender base (Figure 4). The top is generally indented.

CONTROL STRATEGIES FOR CACTUS MOTH

If cactus moth is confirmed on cockspur pricklypear, there are few options for control of the moth. No effective chemical or biological controls have been recommended for the cactus moth, and mechanical control is labor intensive and may not be 100 percent effective. However, it is an available option. Some success was achieved in Florida by weekly removal of cactus moth egg sticks. Since the cactus moth larvae are internal feeders, mechanical removal and destruction of infected plants or plant parts is another possible means of control. There is some interest in developing genetic control by releasing sterile males, but this control method is not available to date.

If cockspur pricklypear is infested with cactus moth, it may be feasible to control the cactus using herbicides (Table 1). In rights-of-way and forests or on industrial lands and grasslands, herbicides that contain the active ingredient picloram (trade names Tordon, Tordon 101, Grazon P+D, Surmount) can be used effectively to control cockspur pricklypear. Picloram is safe to use in grassland systems since most grasses tolerate applications of this herbicide. Many broadleaf plants, however, do not tolerate picloram applications. An additional treatment that may be used in some situations is paraquat (tradename Gramoxone Max). Paraquat is a quick-acting, nonselective herbicide. Before using any of these products remember to read and follow the label instructions. All herbicides that contain picloram or paraquat are restricted use pesticides. Cockspur pricklypear in pastures may also be controlled by livestock grazing the foliage if hairs and spines are removed by burning.

HOW YOU CAN HELP

Currently, an effort is being conducted to locate pricklypear populations in Mississippi. This information will be placed in a web database for public and government agency access. This information can then be used by agencies to locate pricklypear populations for cactus moth monitoring. You can help by providing locations where native and ornamental cacti are growing in Mississippi. Please send this information to: Victor Maddox, Ph.D., GeoResources Institute, Box 9555, Mississippi State, MS 39762-9555, Ph. 662-325-2313, Fax 662-325-8742, E-mail: vmaddox@gri.msstate.edu.

Assistance is also needed from individuals who can volunteer to monitor stands of native and ornamental cacti for the presence of the cactus moth. Individuals or groups willing to collaborate on this project can find additional information at: www.gri.msstate.edu/cactus_moth.

Fig. 4. Erect pricklypear (*Opuntia stricta*) with ripe fruit. Photo by Victor Maddox.

RELATED WEB SITES

For pricklypear: The PLANTS Database, Version 3.5 National Plant Data Center, Baton Rouge, LA.

http://plants.usda.gov

For cactus moth: The cactus moth, an invading pest. GeoResources Institute, Mississippi State University, Mississippi State, MS.

www.gri.msstate.edu/cactus_moth

MORE INFORMATION

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