

Regional Testing of *Diorhabda 'elongata'* Ecotypes

Authors: Dalin, P., Dudley, T., Thompson, D.C., Bean, D.W., Eberts, D., Kazmer, D., Michels, J, Moran, P., Milan, J., DeLoach, C.J.

The Eurasian saltcedar leaf beetle *Diorhabda 'elongata'* has been introduced into several western states for the biocontrol of tamarisk. Establishment was successful at some sites, with heavy defoliation and subsequent mortality of plants observed at sites in northern Nevada. However, at sites south of 37-38° N, the original form of *D. elongata* (collected in Fukang, China 44.1° N) failed to establish. Incubator studies indicated that failure was because this ecotype responds to declining daylength by entering reproductive diapause too early in the season to successfully overwinter.

The purpose of the present study is to test different ecotypes of *D. elongata*, currently held under quarantine in the US (China I 44.1° N, China II 43.5°, Uzbekistan 38.1°, Greece 35.1° and Tunisia 34.4°), inside double secure cages in the field at sites ranging from 33-48° N in latitude. Our predictions are: 1.) Beetles will be reproductively active for the longest time period at those latitudes that match their latitudes of origin, and, 2.) Beetles will have the highest over-wintering survival at matching latitudes. Regulatory concerns that *D. elongata* ecotypes pose risks to the native salt-marsh plant *Frankenia salina* have delayed this research, but we were able to initiate the study in August of this year. Observations do, however, suggest that taking advantage of the full range of beetles might lead to increased success of the biocontrol program. At one southern site in Texas (31.5° N), the Crete ecotype has established with substantial population growth in 2006. The current experiment will provide crucial knowledge about how to promote biocontrol of tamarisk over the widespread range of infestations in western United States.

Affiliations

Peter Dalin, Marine Science Institute, University of California, Santa Barbara. E-mail: dalin@msi.ucsb.edu

Tom L. Dudley, Marine Science Institute, University of California, Santa Barbara. E-mail: tdudley@msi.ucsb.edu

David C. Thompson, New Mexico State University, Las Cruces. E-mail: dathompson@nmsu.edu

Dan W. Bean, Colorado Department of Agriculture, Palisade Insectary & University of California, Davis. E-mail: dan.bean@ag.state.co.us

Debra Eberts, Bureau of Reclamation, Denver. E-mail: deberts@do.usbr.gov

Dave Kazmer, Agriculture Research Service, US Department of Agriculture, Sydney. E-mail: dkazmer@sidney.ars.usda.gov

Jerry Michels, Texas Agricultural Experiment Station, Bushland. E-mail:
asychis@aol.com

Patrick Moran, Agriculture Research Service, US Department of Agriculture, Weslaco.
E-mail: pmoran@weslaco.ars.usda.gov

Joseph Milan, Bureau of Land Management, US Department of the Interior, Boise. E-mail: Joseph_Milan@blm.gov

C. Jack DeLoach, Agriculture Research Service, US Department of Agriculture, Temple.
E-mail: jdeloach@spa.ars.usda.gov

